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1921

REPORT OF

The Department of Public Welfare

Rehabilitation of Physically Handicapped Persons

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STATE OF ILLINOIS

THE DEPARTMENT OF PUBLIC WELFARE

CHARLES H. THORNE, *Director*

REHABILITATION OF PHYSICALLLY HANDICAPPED PERSONS

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REHABILITATION OF PHYSICALLY HANDICAPPED PERSONS

(A plan of administration.)

SUMMARY

In this report the practical operation of the law for the rehabilitation of physically handicapped persons is traced, through a description of conditions that have been discovered by field surveys during the past eight months.

The problems of physical handicap and the processes of rehabilitation are illustrated with cases that have been studied. It is estimated that between 1 and 2 per cent of the population have serious physical disabilities, and that as many as 5,000 persons annually will require first interviews at the time of becoming disabled. The work of other states under similar rehabilitation acts is reviewed.

The most important principle in the State's dealing with handicapped persons is found to be that of advisory service and continuous supervision of cases. For this purpose it is suggested that "rehabilitation aids" with special training be the representatives of the State in dealing with physically handicapped persons.

The two main steps in the process of rehabilitation of disabled persons are stated as being physical restoration and industrial reestablishment. In providing for physical restoration, as required by the law, it is suggested that maximum use be made of existing medical and welfare facilities of communities and that at the Central Hospital Group, now being established in connection with the University of Illinois Medical School, special arrangements be provided for functional restoration of patients during convalescence.

In industrial reestablishment likewise it is suggested that the work of rehabilitation be done as largely as possible through existing facilities in the community. The possibility of accomplishing this to a certain extent through the cooperation of industrial concerns is shown from the results of field studies. Reestablishment at remunerative occupations is found to require chiefly a service of employment placement and of training in industrial establishments. It is suggested that for a small proportion of cases "opportunity shops" be established for vocational testing and preliminary training.

It is shown that the problems of physical handicap are in an important degree preventable, especially in the care and training of

children and in the avoidance of accidents, and ways are suggested whereby the State may enter upon a program of prevention.

Certain legislative measures are suggested, to add to the effectiveness of the Rehabilitation Act. Ways in which other State departments, especially the Departments of Labor, of Education, and of Health, may aid in making the law effective are shown. Some of the services which voluntary agencies in the community may be expected to perform are listed.

The budget statement on an annual basis, includes the following items:

Staff salaries and traveling expenses	$117,500
Maintenance of handicapped persons during training	50,000
Research, publication and general administrative expenses	55,000
Establishment of main rehabilitation center and branches, temporary quarters	75,000
Revolving fund for purchase of artificial appliances	10,000
	$307,500

This is the estimated cost for the first year of operation under full organization. The amount may be reduced between 25 and 50 per cent during the first year of actual administration. The work would have to be developed gradually. About one-half of the actual total might be secured through revenue from the Federal Government under the Fess-Kenyon Act for disabled persons, and from an arrangement whereby payments due for compensation for fatal industrial accidents, in case there are no heirs, would be made into a special rehabilitation fund.

In addition to the foregoing maintenance costs, it is estimated that about $250,000 should be appropriated for a special rehabilitation hospital, to include an "opportunity shop," and quarters for the staff of the rehabilitation service, as a part of the Central Hospital Group at Chicago.

I. REHABILITATION WORK AS A STATE ACTIVITY

In years past the State has selected for special attention one class after another, out of what had previously been treated as a general mass of poverty. The old time almshouse was notable as a catch-all for these problems. First the able-bodied were taken out and put at labor in workhouses. Later the insane were removed, as for example in Illinois under the State Care Act. The commitment of children to almshouses was then investigated and other methods of care were adopted. Mental defectiveness has lately appeared as a definite public problem, and separate provision is being made.

The physically handicapped have until now been an undefined element in the problems of poverty and distress with which every community has had to deal. Examination of such cases as are cited in this report shows that in many instances, through physical and industrial rehabilitation, they may be kept from economic failure.

The activities of the State in behalf of those in need have usually been directed along institutional lines. The artificiality of institution life and the cost of making material provision for increasing numbers have led to the development of out-patient service and the supervision of cases in the open community. Advisory service to individuals and the use of existing agencies have been emphasized by the legislature in making the present arrangement for the rehabilitation of the physically handicapped.

The effects that are sought in the Rehabilitation Act are primarily economic. The procedure affects administrative organization in the fields of medicine and surgery, of applied psychology, of education, of industry, of labor placement and of social work. The primary provision is that of continuous dealing with specific cases through a period of readjustment. In effective case supervision, leadership on the part of some single authority is necessary. The leadership in this instance has been assigned to the Department of Public Welfare. The survey has shown that the help of other public departments also, and of community agencies, is necessary for the reestablishment of disabled persons, and these recommendations are intended to provide for the distribution of functions accordingly.

II. THE CONDITION OF THE PHYSICALLY HANDICAPPED

A. EXAMPLES OF PHYSICAL HANDICAP (ADULT)†

A Recent Industrial Injury.

When a falling chimney knocked the scaffolding from under the carpenters at work on a tall building, Ladd Mann* hung by one hand in spite of the tumbling bricks which had crushed his foot and shattered one arm. A derrick brought him to the ground, half an hour later.

A dispute between the construction company and the chimney concern as to who was responsible, resulted in Mr. Mann's receiving no medical attention for a week. He recovered finally, minus one foot, and with a stiffened, partially paralyzed arm.

He came out of his convalescence convinced by his wife, sympathetic friends and coworkers that he had had a hard deal and would henceforth be dependent. There were five children in school. Two young girls in the family went to work. Fifteen dollars a week was allowed by the Industrial Commission.

A visit from a representative of the survey and reconstruction literature opened up an unanticipated future to him. Arrangements are being hurried for the artificial leg, and for special occupational therapy to increase the usefulness of his arm. Plans are being formulated to put Mr. Mann's expert knowledge of blue prints to advantage in a well paid job suited to his disability.

* Names used in this and later case descriptions are fictitious.
† See Appendix B-2, B-3, F-6.

Child Labor, Illiteracy and Handicap.

Oliver Sleszynski was 19 years old at the time of his operation in January, 1920. He was an illiterate Polish boy. He had started to work in the mines almost as soon as he could lift a pick. In May, 1917, a mine explosion crushed his left leg. It was amputated in the middle thigh, and he was in the hospital for six months. He was discharged with the stump healed, except for a small discharging sinus which the surgeon told him would heal shortly. He was not fitted with an artificial leg.

He received $1,900 compensation. This money was turned over to his father and step-mother and, with only a few dollars in his pocket, he came to Chicago, where a sister was living. Failing to locate his sister, he secured lodgings in a cheap hotel and for three weeks vainly sought employment. Other cripples stayed at this hotel and they obtained their living by begging. It is the practice for such persons to procure licenses to sell shoestrings or other merchandise, which they display only when a policeman is in sight. Oliver, despondent and moneyless, was about to procure his license when someone told him of a society engaged in rehabilitation work.

This society sent him to a hospital for examination. It was found that the sinus on the end of his stump had never healed. A reamputation was performed, removing four inches more of the thigh. After eight weeks of hospital residence he was measured for an artificial limb and in two more weeks he was able to walk about without crutches or cane.

During his stay at the hospital, Oliver was taught English and tried his hand at several kinds of occupations. He was anxious to learn photography and to become a motion picture operator. Books on the subject were procured and many of his English lessons were taken from these books. When he was ready to leave the hospital a job was found with a motion picture concern, developing films at night. For this he received $5 a night. In the afternoons he continued his study of English and took up other subjects. His pay was raised and recently when the concern closed down Oliver secured an excellent job at the same business at Kansas City.

Compensation Money Poorly Invested.

John Stewart, a colored man, 22 years old, fell from a high building while washing windows and injured his spine. In 1917 the compensation bureau of the state in which the injury took place awarded him $2,000 as a lump sum and $6.38 to be paid bi-weekly for the remainder of his life. With the $2,000 John bought two houses in the South and part ownership in an automobile which he used as a taxicab. The winter of 1919 found him and his wife in Chicago, destitute. The houses no longer belonged to him. The touring car, which had been mortgaged, stood dust covered in a garage. John's wife, who had been supporting him, was ill. John was idle.

Rehabilitation in this case would begin with securing an exact diagnosis of Mr. Stewart's condition. It would be especially helpful to learn whether his spinal injury requires that he remain seated at work.

To train and place this 22 year old man in a trade at which he might remain seated probably would be neither a lengthy nor difficult proceeding.

The Fear of Disability.

John Allen, American, age 24 years, fell ten feet upon a cement floor, injuring his coccyx. After three weeks the surgeon removed the coccyx. The case was referred to another surgeon, as John had not worked for a year. He complained of numbness in his legs, weakness, inability to walk in an erect position, sleeplessness, and his general appearance and statements indicated a mental attitude of resignation to a state of permanent disability.

John was placed in a hospital, and after three days of careful observation his condition was diagnosed as traumatic neurosis. Treatment consisted of massage and light exercise, first for two hours a day, later for four hours a day; and work in the occupational therapy shops, first for two hours a day and later for four hours. John became interested in the jig-saw, which he manipulated by foot power, and it was his delight to make many scroll designs. At the end of a week he said the numbness and pain in his legs was better.

At the end of the second week he went to the park with one of the other patients, who was posted to try and induce him to row a boat. He rowed the boat for half an hour the first day, and for the next three days was eager to go to the park, and the last day rowed a boat for two hours. At the end of two weeks in the hospital the surgeon held a conference with John, pointing out to him that there was absolutely nothing wrong, and that his numbness and pain and sleeplessness had been the result of a mental state. He returned to his old occupation the next day, and has worked ever since.

Two Immigrant Miners in a Small City.

(As described by the secretary of the local charity society.)

1. Ten months ago Mr. Kusack, an Austrian miner, injured his leg while at work. Five months were spent in the hospital, and now he is at home with his wife, a little daughter 3 years of age and twins 2 years. He receives $15 a week compensation and has called at the charities office for assistance in furnishing clothing for his wife and children.

A visit to the house reveals need from every point of view. There is a dearth of knowledge of the simplest health laws, and the art of homemaking is unknown.

When the visitor entered, Mr. Kusack hastened to the wall clock, opened it and took out what seemed a precious package—"Bones! Bones! from my knee that got hurt in the shaft!" he exclaimed. "Now see!

work no more!" and throughout the visit this was the strain: that, having crippled his left knee, he, aged 44 and the father of three small children, could never again perform a day's labor. An interpreter gave him his first hope by explaining for the visitor, the Illinois law relating to the rehabilitation of physically handicapped persons.

Work was begun by starting a simple English course and the landlord became so encouraged with this effort and the possibilities for the man that he is repairing the dwelling.

The next call will be made in company with the mine superintendent.

2. Mr. Giolotti, a miner, suffered a stroke of paralysis in the spring of 1920 and now finds himself unable to resume his former employment because his left arm and leg are useless and his right hand is needed to steady a cane.

Mr. and Mrs. Giolotti and two children are now entirely dependent upon the oldest boy's earnings. This boy is 21. He left parochial school in 5th grade and as a result of an accident in the mill when 16 lost his left leg. No one saw just the right opportunity for him then and he drifted from one *"light job"* to another until the railroad company, needing a watchman, gave him the job. A watchman at 21, with a bright smiling face, a forgetfulness of his handicap and a love of books!

He has been told of the Illinois Rehabilitation Law, and only awaits an introduction to the rehabilitation program.

Therapeutic Occupation.

David Amidson, 25 years old, a Norwegian, has a congenital curvature of the spine. At the age of seven years he had infantile paralysis. This left him helpless in the lower extremities, which have never developed. His only way of locomotion was to creep. Three years ago his mother brought him to this country, and two years ago he came to Chicago, where he has a sister living. He had never worked.

A certain rehabilitation agency fitted him with braces which enabled him to stand, with the aid of crutches. He was taught basket making in his home. About eight months ago he was brought to the work shop of the society in a taxicab. A week later he appeared at the work shop in a tricycle which he had designed himself, and which neighbors helped make for him; this he propels by hand. He lives eight miles from the work shop and it takes him two hours to make the trip, but since that time he has never missed a day.

David is now doing piece work six hours a day, and his pay averages $14.50 per week. Thus far no means have been found of bettering his physical condition, but he has been changed from an absolutely dependent man to an independent worker. A motor is now being designed for his tricycle, which will enable him to get about more rapidly. He is planning to enter some business of his own.

How the Employer May Help.

Mr. Schmidt, 35 years old, American born, had been suffering from arthritis, and was unable to continue his work as box maker for a garter company. His wife also worked in the garter factory. The 14 year old son was at work and assistance was given by relatives.

Competent medical care improved Mr. Schmidt's condition. The factory's interest was aroused, and he was supplied with home work. During the time Mrs. Schmidt broke down under the nervous strain. It was later discovered that a part of her trouble was due to her posture at work. Her job was changed, and work limited to half a day—the factory supplementing her wages.

When Mr. Schmidt was able to earn $17 a week on home work, effort was made to replace him in industry.

Delayed Treatment.

Frank Henrick, 21 years old, while working in a bank, became paralyzed. He was quite helpless, not being able to use crutches. For six years two young sisters supported the family, as their widowed mother had to remain at home to care for Frank.

He obtained a typewriter and did some work for an advertising agency. He also made coarse tatting which he sold. In trying to find a cure, Mr. Henrick was under the treatment of doctors of medicine, osteopaths, chiropractors, spiritualism, baths, a "bone-setter," and "sure cures." After he had spent $500, an appeal for financial aid to buy a Violet Ray outfit brought him to the attention of a visiting nurse. An orthopedic surgeon was called in and muscle training was given. With the help of braces and crutches he is expected to be able to walk, and thus improve both his outlook on life and his opportunities for gainful employment.

Three Industrial Problems.

The surgeon advised a man against heavy work. The foreman put him to work at pulling a truck. This resulted in tearing down the results of treatment and the continuation of compensation payments. The case shows lack of cooperation of a large industrial concern with their medical advisor.

A glazier injured his wrist and was temporarily too unsteady for work. He could easily do other forms of light work, but for lack of opportunity with his employer he had to lay off and be paid compensation. The case shows need of a flexible scheme of industrial adjustment.

Three coal miners with back injuries have been receiving compensation for total disability for over a year. It is plain to the surgeon that their only hope lies in changing jobs and perhaps in retraining. No one is especially interested in bringing about such a shift, however, and the little village offers little variety of employment, so nothing is being done to "reconstruct" these men.

Safeguarding Machinery and the Home.

At 18 a Polish boy who had been born with his left hand paralyzed was earning $30 a week and supporting his mother and two small sisters, when his right hand was caught in a machine and crushed. He received $624 compensation. For months this boy, with one hand paralyzed and one with fingers stiff and bent, hunted work. He is now carrying meat in the stock yards at a lower wage than he received before the accident. This is not sufficient to support the home.

B. CHARACTERIZATION OF THE PROBLEM

The Viewpoint of the Disabled Person.

What it means to be handicapped is partly told by these histories. Even the man who has triumphed over his handicap economically, is not apt altogether to throw off the spell of dissimilarity from his fellows. A proportion of the seriously handicapped—those chiefly who have not come under constructive influences—are affected by the general misunderstanding of the public. Pity is a positive obstacle to self-respecting advancement. Furthermore, the disabled man meets frequently with practical difficulties. The location of a suitable job at a distance or above the ground floor may be prohibitive. He may be unable to get insurance. His opportunities for amusement and for companionship may be restricted. It may be hard for him to advance his interests through association with his fellows, or through following his natural inclinations regarding occupation. For the adult, the suffering of physical disability may mean the curbing of ambition or even the abandonment of a lifelong desire. The health and development of a man's family may be affected. Appreciation of personal circumstances such as these argues more strongly than any other evidence that can be presented, for the adaptation of the State plan of rehabilitation to thoroughgoing case work.

*Types of Disability.**

In studying industrial opportunities for the disabled, the more frequent types of handicap have been grouped to indicate the outstanding conditions affecting employment, as shown by the following list:

Amputation or lack of use of feet or legs, arms, hands or fingers.
Deformity or weakness of back or neck.
Defective heart.
Blindness or defective vision.
Deafness or defective hearing.
Disease of the lungs.
Hernia.

For study of individual cases the list below is used, indicating more specifically the disease condition:

* See Appendix A-3.

Amputations.
Tuberculosis of bone and joints.
Paralysis—
Paraplegia.
Infantile paralysis.
Rachitis with deformity—dwarfs.
Arthritis.
Progressive muscular atrophy.
Pott's disease.
Scoliosis.
Sarcoma.
Syphilis.
Neuroses.
Hernia.
Defective heart.
Goiter.
Deafness or partial deafness.
Blindness or partial blindness.
Hydrocephalus.
Cretinism.
Chronic osteomyelitis.

The Main Factors in Physical Handicap.

Physical handicaps are first of all matters of bodily disability. These disabilities range as widely as do the effects of disease, the forms of congenital defect, and the results of accidents and of surgical operations. Except in case of loss or absence of bodily parts, the physical condition is usually associated with organic disease and is apt to be improving or growing worse, or else subject to change under certain conditions. The best occupational adjustment that can be devised for a physically handicapped person may not relieve him entirely of physical discomfort. Varying and changing conditions of bodily disability therefore appear as the primary explanation of lack of uniformity among cases of physical handicap.

Even the most serious of difficulties frequently are overcome by personality. In the development of superior personality the age at which the disability occurs and the training given thereafter are important. Whatever the disability, it is of no value to make an appraisal of the man's condition without reckoning with the qualities of his personality.

But physical handicap is more essentially a relation of disabilities and personality to specific employment. A great section of cases of disability are to be disregarded in planning a program of rehabilitation because the disability does not happen to interfere with the man's continuing effectively at his present occupation. The majority of cases of loss of one eye are an example.

The unskilled or poorly skilled person, however, needs attention even though his disability does not affect present employment, for with the next shift or job it may seriously embarrass him. For him and for the skilled worker whose employment has been affected by disability, it is important to weigh in every case certain conditioning factors. These include sex, age, intelligence, education and industrial experience, both before and after suffering the disability, and the relation of available powers to the convenient industries and enterprises.

A fourth consideration that must be counted in rating physical handicap consists of the man's economic resources, direct and indirect: accumulated wealth, family make-up and the assistance of relatives and friends. With the disabled young person these possibilities of help and

protection should weigh the less against the adoption of a plan of rehabilitation, for reverses may come and he may need to support himself. Indeed, simply as a means to happiness, for both the young and the middle aged, the existence of such resources as these should not prevent the adoption of a constructive plan to offset the effects of disability.

Soldier versus Civilian Problems.

A small proportion of the civilian handicapped will be found to correspond, in type and circumstances, to the disabled soldier, but those whom the State is now setting in to reestablish are characteristically of other sorts. The disabled soldier was in the formative period of life, he had been to school fairly recently and had not acquired industrial "slant." He was skilled or could attain skill easily. He was capable of development and mobility in matters of industrial adjustment. His possibilities of reconstruction had been studied during his convalescence in the military hospital.

The civilian handicapped are of all ages. Those injured at work are frequently mature, with fixed habits, with family connections that must be conserved, and without standard hospital experience from which to start in the work of readjustment. The circumstances of receiving the disability and the subsequent treatment usually make for the handicapped civilian a different outlook. His experience has been undramatic.

It has been estimated* for the country that the industrially injured alone would equal the number of disabilities resulting from constant active combat of an army of a million and a half. For Illinois it may be said that seriously handicapping disabilities occur as frequently as one per hour. Especially in the vastly greater number of civilians disabled and in the variety of cases, and the circumstances preceding the application of a plan of rehabilitation, are the men and women who will be served under the Illinois scheme of rehabilitation different from the returned disabled soldiers.

III. NUMBER OF PHYSICALLY HANDICAPPED PERSONS

ORIGIN OF HANDICAPPING DISABILITIES

The Rehabilitation Act applies to "every phyhically handicapped person 16 years of age or over residing in the State of Illinois." The test of handicap as stated in the act is to be actual or potential incapacity for remunerative occupation. Such incapacity may originate in any of the following ways:

Congenitally.
Through accident.
Through injury.
From disease.

* "The Redemption of the Disabled." Garrard Harris, p. 288.

A count of disabilities occurring in the foregoing ways would give the gross number of cases with whom the State might be expected to deal. However, it is not possible to make a close estimate of the number of permanent disabilities that have occurred in these ways. Even if such figures were available, they would give no idea of the severity of the disabilities, or of their handicapping effects.

The Rehabilitation Act therefore provides that when the work of reestablishment is undertaken, contacts with needy cases shall be made through certain channels. These are:

Public and private hospitals.

The State Industrial Commission (which administers the act for the compensation of injured employees).

Direct applications from physically handicapped persons.

Surveys to be conducted by the Department of Public Welfare.

The probable number of cases that may be anticipated as arising in each of these ways is estimated later in this report.

COMMUNITY CENSUSES*

Whatever censuses of the general population were made had to be undertaken in connection with local activities. House-to-house canvasses for cases of disability have been conducted as part of the school census in the following cities: Springfield, Decatur, Taylorville, Danville. A house-to-house visitation of certain districts in Chicago also has been made, through cooperation of the University of Chicago. In order that the results may be reliable it is necessary that the original location of cases be followed with a second visitation on the part of a specially trained worker, to secure more complete descriptions of disabilities and of economic circumstances, and to form some judgment as to the handicapping effects of the disability. The second visitation has been finished in Chicago and Decatur, and is being planned for Springfield. A community survey, including second visitation of cases and study of industrial opportunities, is being organized also for the tri-cities, LaSalle, Peru and Oglesby.

Results from these censuses in various stages of completion indicate the probable proportion of disabilities in the general population. From the small city studies made (Springfield, Decatur) it is estimated that slightly less than 1 per cent of the population of small cities are physically handicapped. This calculation is borne out by the results from the smaller towns (Taylorville, Danville) where the school canvass was limited to persons of school age. From the Chicago study, which is limited to certain working class sections, it is estimated that approximately 1.5 per cent of the population of large cities are physically handicapped.

This phase of our study has been conducted chiefly with a view to stimulating local interest and to acquiring information that would serve

* See Appendix B-1, B-2.

as a basis of comparison with the results of more elaborate studies outside Illinois. The most extensive of these investigations was made in Cleveland in 1916. The entire city was canvassed and a ratio of 6.2 per 1,000 was established as the proportion of cripples. In a canvass of certain areas in New York City having a population of about 110,000, the past summer, a corresponding ratio of 6.9 per 1,000 was discovered. This ratio of cripples, of about .65 per cent, in the population of large cities may therefore be considered to be fairly well determined.

Persons noted in the schedules in these two cities were handicapped through lack of normal use of skeleton or skeletal muscles. Disease conditions, such as heart defect, tuberculosis or partial deafness were not counted.

In the Cleveland and New York surveys and in a similar one made in Birmingham, England, in 1909, notation was made as to whether or not the crippled person was self-supporting. The results are as follows:

SELF-SUPPORT OF CRIPPLES.*

	Self-supporting.	Partly self-supporting.	Dependent.
Cleveland, 1916, 4,186 cases	53 per cent	3 per cent	44 per cent
New York City, 1920, 727 cases	59 per cent	13 per cent	28 per cent
Birmingham, Eng., 1909, 1,001 cases	18 per cent		82 per cent
Massachusetts, 1905, 15,878 cases	56 per cent		44 per cent

* Publications descriptive of the four censuses here referred to are as follows: Cleveland, "Education and Occupations of Cripples, Juvenile and Adult," published by Institute of Crippled and Disabled Men, 311 Fourth Av., New York; New York, "Survey of Cripples in New York City," published by N. Y. Committee on After-care of Infantile Paralysis Cases, address 69 Schermerhorn St., Brooklyn; Birmingham, study by a voluntary committee, report secured from city public health department; Massachusetts, summary here quoted is furnished by the Director of Vocational Training, Industrial Accident Board, 272 State House. The Massachusetts figures given here are adapted from a table of occupations, in which it is impossible to distinguish between partial and complete self-support, and in which the following groups are counted as dependent: Scholars and students, retired, unemployed 12 months, dependent, and at home under 10 years.

In the Cleveland study, the 2,553 persons between the ages of 15 and 60 years were classified according to degree of disability, with the following results:

ABILITY TO WORK, 2,553 CRIPPLES, 15-60 YEARS OF AGE, CLEVELAND.

Not seriously handicapped for normal occupation	29 per cent
Able to work at selected trades and processes	45 per cent
Disabled for work alongside normal persons	26 per cent

As noted above, the value of results from these cities in application to the Illinois problem is limited, in so far as they do not include handicapping conditions not affecting the normal use of skeleton or skeletal muscles. It is an undetermined question, for example, as to whether such orthopedic defects as were noted under the more limited Cleveland definition interfere with capacity for self-support more or less than heart disease or tuberculosis. In this connection the results of the state census of "maimed, lame, and deformed" in Massachusetts in 1905 may be

noted. The "causes of handicap" in the 17,134 cases discovered were found to occur in the proportions shown in the following table. With these results are shown the corresponding proportions discovered in the Cleveland study of 1916.

CAUSES OF DISABILITY, MASSACHUSETTS AND CLEVELAND.

Massachusetts census of 1905, 17,134 cases.		Cleveland survey of 1916 4,186 cases.	
Occupation	13.4 per cent	Accident at occupation	11 per cent
Accidents	28.5 per cent	Other accidents	32 per cent
Disease	45.2 per cent	Infantile paralysis	13 per cent
Military service	3.6 per cent	Other diseases	34 per cent
Birth	5.4 per cent	Congenital	7 per cent
Not specified	3.9 per cent	Not stated	3 per cent

NUMBER OF NEW CASES ANNUALLY

Such results from community censuses are valuable chiefly in providing a birdseye view of the effects of haphazard attention in the past to the needs of the physically handicapped. Some of the details of these surveys, involving acquaintance with individual cases, are more directly valuable than the totals, in planning the administration of the Illinois act. The law properly emphasizes the establishment of relations with new cases at the time of occurrence of the disability. Only in starting early with the man who has become handicapped can the State expect to demonstrate the value of a constructive program.

Measurement of the probable intake of new cases every year, and not the accumulation of needy cases in the community, is the important consideration.

What the actual demand for the services of a State Rehabilitation Bureau may be, can be estimated only broadly, for it is a new type of service the State will offer and the demand will depend upon its attractiveness to those who become disabled. The best guage of active demand for service to new cases of disability may be obtained through the four channels mentioned in the law. These are listed here, with numerical estimates as explained in the paragraphs that immediately follow:

Through hospitals	1,500
Through the State Industrial Commission	2,000
Through direct application—through local surveys	1,500
	5,000

In drawing cases for rehabilitation from these various channels the law provides for personal presentation of the opportunities of reestablishment to the disabled person. This "direct salesmanship" is an outstanding feature of the act. The lack of visitation of the handicapped person immediately upon the occurrence of disability, in nearly all places where rehabilitation programs are in operation, makes it difficult to apply their results to the Illinois situation.

Disabilities handled under the Compensation Act* afford the best basis for computation, in making an estimate of the prospective demands for the State plan of rehabilitation. Of the 36,533 cases handled by the

* See Appendix F-5, F-4.

State Industrial Commission during the calendar year 1919, 5,021, or 14 per cent, were classified in the three groups: total disability, permanent specific loss, permanent partial disability. The totals for 1919 were somewhat lower than those for the preceding year. We have made inquiry into the conditions subsequent to injury of 2,089 of these cases, consisting of the more seriously disabled. The results of this study and the experience of rehabilitation bureaus in other states dealing with compensation cases lead to the conclusion that the services of a State rehabilitation service would have been offered to about one-third of the 5,021 cases included in these three classes, or approximately 1,700. With the variation in number of injuries from year to year and with the inclusion of a small number of cases of industrial injury from preceding years, one should count upon first interviews with about 2,000 cases a year from this source.

From a canvass of the general hospitals of the State,* it is estimated that in the beginning the services of the State rehabilitation service should be offered through personal interview every year to about 1,500 cases of disabilities not covered by the Compensation Act and hence not included in the foregoing estimate for the State Industrial Commission. Hospital records usually do not cover the economic condition and prospects of the patient nor do they include a prognosis regarding the capacity of the patient for remunerative occupation following his recovery. In order that information may be reported uniformly, a standard schedule for use by hospitals in recording physical disabilities is now being prepared.

Other important channels of intake for cases of handicap coming to the attention of a State bureau would be the practice of private physicians and the work of social agencies.† For purposes of arriving at a general result, it may be supposed that as many as 500 cases would originate thus every year through direct application. Some of these cases would be of long standing, and to that extent undesirable for the most effective application of the rehabilitation plan.

Perhaps the most important single source of cases demanding the attention of a State rehabilitation service would be that of handicapped children arriving at the age of 16, the point at which the Rehabilitation Act applies. The proportion of disabilities occurring in childhood, as revealed by leading surveys is as follows:

PROPORTION OF ALL CASES INTERVIEWED IN WHICH DISABILITY OCCURRED IN CHILDHOOD

Cleveland	49 per cent under 15 years
New York City	63 per cent under 16 years

Children are of first interest in the program of rehabilitation from the standpoint of preventive measures and of educational efforts that may reduce their handicaps as adults. The annual intake of cases from

* See Appendix D-2.
† See Appendix C-1, C-2.

this source can be estimated only broadly, and for present purposes it will be supposed that the number would be approximately 1,000.

The total number of cases for preliminary interviews annually is thus estimated to be about 5,000. The proportion of these with whom a State rehabilitation service would be concerned after a first interview would vary greatly according to the particular source from which any case would originate. From the experience of existing rehabilitation bureaus, and from the variety of services contemplated in the Illinois act, it is estimated that subsequent steps in the process of rehabilitation would be taken in about 3,000 of these cases.

THE COMMUNITY BURDEN OF HANDICAP

The foregoing is an estimate of demand specifically for case work on the part of a State rehabilitation service such as the present act provides. It shows to some extent the volume of work to be done by such a bureau, and by cooperating agencies in the community. The burden of physical handicap now being borne by local communities is reflected somewhat in the ratios already given, of disabilities to population. It is indicated further in the experience of welfare agencies dealing with families.* The United Charities of Chicago, for example, during the year 1919 handled 687 cases of chronic physical disability, among the 6,842 families to whom they rendered service. During an almost identical period of a year, the county agent's office at Chicago gave relief in 2,926 cases involving physical handicap of the head of the family, the majority being cases of tuberculosis.

Cases of disability handled by voluntary agencies, by employment bureaus and by other local public departments are not to be considered in all instances as subject to reference to the State rehabilitation service. Many of these people will continue to be handled partially or altogether by such agencies as are now dealing with them. More specialized services may be offered by the State or by new private agencies, and a system of industrial reconstruction developed for the individual in need, such as has been wanting heretofore. The service of rehabilitation when initiated at the right time, namely, at the occurrence of disability, may be performed nearly altogether above the line of poverty and economic distress. The purpose is essentially to prevent the development of discouraging end results such as now make up a large proportion of the more difficult cases handled by public and private welfare agencies.

IV. CASE WORK THE MAIN REQUIREMENT

POSSIBLE EMPHASES IN ORGANIZATION

Under the conditions described, it is plainly possible to apply the Illinois Rehabilitation Act through more than one type of organization.

* See Appendix C-1.

Under a law containing the same general provisions but limited to the industrially injured.† Pennsylvania has begun its work by handling chiefly matters of replacement in industry, with secondary emphasis on retraining. New Jersey, likewise with a similar law but limited to industrial injuries, has established a system of state clinics for the physical reconstruction of the disabled, with secondary emphasis on re-employment. Under a much simpler statute Minnesota is developing a procedure in which the emphasis is placed on vocational reeducation and coordination of voluntary social service. In Massachusetts, where activities to date have been mainly in the nature of preliminary study, attention is given chiefly to putting the disabled person in good physical condition, and to such practical training as will enable him to go back to work as soon as possible.

The situation in New York City is notable for the pioneer activities of the Institute for Crippled and Disabled Men, under whose auspices the possibilities of institutional leadership and of a specialized employment agency in the program for the physically handicapped, are being worked out. The situation in Cleveland is notable for the original city-wide canvass made in 1916 and the subsequent formation of an Association for the Crippled and Disabled through whose several departments the work for the physically handicapped in the city has been coordinated.

These examples illustrate the many-sidedness of the problem of rehabilitation and suggest that to succeed with the undertaking it may be necessary to organize a system through which all these services would be provided. Conditions in Illinois favor the development of a more complete system than any that has been observed elsewhere.

In New York City and Cleveland the work of rehabilitation has developed almost entirely under the leadership of voluntary agencies. One case reported by the Institute for Crippled and Disabled Men in New York* affords a picture of the possibilities of action by private organizations:

> One department of the Red Cross paid for artificial legs, another looked after the man's transportation. One organization sent friendly visitors to the hospital and his home; two clinics looked after his eyes and teeth; a hospital provided for the re-operation on a troublesome stump; the institute attempted to give him training and made his legs; one organization furnished him with a teacher at home, another gave the services of a visiting nurse, and the employment department finally placed him. The field work department engineered the whole job.

The limitations of voluntary work, through possible delay and overhead expense in negotiating arrangements, are suggested in this illustration.

The Illinois law provides a plan which is flexible enough for modification with changing conditions. As an example of the need of flexibility, following the establishment of the state clinic at Newark, New

† See Appendix A-5.

* "Three Years of Work for Handicapped Men," p. 61, a report of the activities of the Institute for Crippled and Disabled Men, by John Culbert Faries.

Jersey, insurance companies are said to have set up facilities for group diagnosis of persons injured in industry, so that the patronage of the state clinic has been reduced. If the State rehabilitation service should be developed chiefly as an advisory agency, it will tend to bring out the maximum possibilities of private institutions and societies and of industrial concerns, to place the work of reestablishment of the disabled as largely as possible upon the several communities, and thereby to reduce the cost to the State.

ADVISORY SERVICE AND CONTINUOUS CONTROL

Emphasis on the part of the State upon the advisory type of service to disabled persons is inherent in the procedure of rehabilitation. The State may, on the one hand, provide certain benefits to all the physically handicapped, such as facilities for securing artificial limbs and appliances. On the other hand, to succeed in making a man independent economically and vocationally, calls for his personal cooperation and for favorable conditions in the locality in which he lives and works. The State can only seek to develop favorable personal and environmental conditions; uniform success cannot be guaranteed.

Another principle of importance is the necessity of unifying the work done with each case. Effective rehabilitation is a continuous process, from the date when the disability is received to the time when the person is profitably reemployed. It is the concensus of opinion of those who have dealt with the handicapped, that difficulty and failures have arisen chiefly as a result of shifting control of the case from one agency to another. The handicapped man drops from sight, out of the current of cases handled from day to day by clinics, employment bureaus and charitable agencies. What is most needed is a controlling authority which will focus the work of various agencies on the individual, and help him develop his capacities, from the point of receiving the original diagnosis showing disability to the point of ultimate reestablishment in industry.

REHABILITATION AIDS

The fundamental importance of these two principles, namely advisory service and continuous control of the process of rehabilitation, calls for administrative organization that will favor effective personal relations with each handicapped individual. It is the almost universal testimony of those engaged in work for the handicapped in states and cities referred to above, that personal supervision is the key to rehabilitation. This type of work is emphasized in the Rehabilitation Act, which directs the Department of Public Welfare "to arrange for social service to and for the visiting of physically handicapped persons registered with the Department of Public Welfare and their families in their homes during the period of treatment and training and after its completion, and to give advice regarding any matter that may effect rehabili-

tation." The personal service required calls for special knowledge, on the part of the worker, of the effects of various physical disabilities, and of industrial conditions and opportunities. The law implies that the worker shall trace all the important relations of the handicap to the man's personality and to his industrial opportunities.

These requirements should enter into the training and appointment of a staff of "rehabilitation aids," who will be the representatives of the State in reaching and assisting the handicapped man. They will conduct the original interviews with disabled persons, whether reported by hospitals or otherwise. "The best time to discuss the problem of reeducation with a wounded soldier is the day before he is injured," and the best practicable time to present the prospect of rehabilitation to the disabled civilian is as soon as possible after his disability. The rehabilitation aids will "meet the injured man upon the threshold of his altered life with a positive message of hope." At a time when the man's mind is upset by his disability and his attitude often pessimistic, the rehabilitation aid will present the plan of reestablishment attractively. She will be acquainted with the facilities of the State and with the resources of the communities in which the man lives.

The case histories of disabled persons that have been reviewed as part of the present survey have been studied with a view to determining the advantage that would have come from a definite offer, at the most appropriate moment, of the kind of service described in the Rehabilitation Act.* In nearly every instance it has appeared that a specific appraisal of a man's physical capacities and industrial possibilities and an attractive presentation of a plan of reestablishment would have shortened the course of a social treatment that was actually followed, or might have resulted in the rehabilitation of persons who now are in discouraging circumstances. Good salesmanship of the ideas of health and of self-support seems to have been the key to the situation in nearly every case.

Whatever adjustment the man's condition and inclinations require, the rehabilitation aid will assist him through to the point of satisfactory employment. Assurance of advice and of suitable aid at the time of occurence of disability has been shown in practice to constitute an important feature of reestablishment. To carry out these provisions of the act in respect to initial visitation will be a unique and advanced step in rehabilitation work as undertaken in the several states.

V. PHYSICAL REHABILITATION

PROVISIONS FOR EDUCATIONAL RESTORATION

The law requires that arrangements be made for physical restoration as a part of rehabilitation of handicapped persons. Describing the

* See Appendix C-1.

importance of reestablishing functional activity following surgical operations, Dr. Frank Billings says*:

> The average surgeon is happy if his patient with a fracture of a long bone gets through without deformity or shortening of the lower limb. As a rule, he does not see to it that the function of the joints and muscles of the involved extremity are exercised and trained to restore function definitely.

For the disabled Canadian soldier it is reported† that "at least 50 per cent of all hospital populations required and received some kind of physio-therapeutic treatment; in special hospitals, such as the Dominion Orthopaedic Centre, in Toronto, the percentage has been very much higher."

The State Rehabilitation Bureau of New Jersey, working under an act similar to the Illinois law, has been given almost entirely to physical rehabilitation. In New York City a private institution, the Clinic for Functional Reeducation, was organized in 1918 and is handling cases of physical rehabilitation for social agencies, for industries and insurance companies, and for the War Risk Insurance Bureau of the Federal Government. They handle currently about 40 resident patients and at the same time give treatments to about 400 out-patients. In the last two years approximately 3,000 cases have been handled, 2,000 of whom received treatment for functional restoration. Fifty per cent of these are reported to have been cured and 25 per cent in addition to have been discharged as improved.

A State activity in Illinois showing the possibilities and benefits of State leadership in this field has been the organization and conduct of community clinics for infantile paralysis under the State Department of Health. The Department of Public Welfare has recently conducted a series of clinics for eye defects, especially trachoma, as an extension of the work of the State Eye and Ear Infirmary. Nearly 1,200 persons have been examined and referred to local physicians, or have been treated when they could not properly be referred. A large proportion of these individuals would not otherwise have sought treatment. The service rendered has cost only a small fraction of the usual amount. These activities have affected for the most part children under 16 years of age who therefore do not come immediately under the provisions of the Rehabilitation Act. They demonstrate, however, the low cost at which the service of the State may be extended to communities in cooperation with local practitioners, and the increase in use of medical facilities that comes from conducting community clinics under State auspices.

Some inquiry has been made regarding the provisions for functional retraining in Illinois. The general hospitals of the State have been canvassed.‡ With a few exceptions it is found that apparatus and or-

* "Physical Reconstruction applied in the Treatment of Pulmonary Tuberculosis," pamphlet, 1919.

† "Report on the Physio-therapeutic Work in the Various Military Hospitals throughout Canada," Dominion Department of Militia and Defense, p. 8.

‡ See Appendix D-2, D-3.

ganization for this purpose are almost entirely lacking. One industrial concern with an employed force of about 6,000 has established a well equipped and staffed department of physio-therapy in connection with its medical service.

WORK TO BE ORGANIZED ABOUT CENTRAL HOSPITAL GROUP

The provisions of the law with respect to physical restoration of the disabled man require a positive program on the part of the State.† That the State either may organize for the physical rehabilitation of disabled persons directly, or may depend upon community agencies, is shown by the fact that under similar legislation both alternatives are represented in the procedure of New Jersey and Pennsylvania.† The authority already given the Department of Public Welfare in the organization and management of the Central Hospital Group at Chicago, in connection with the University of Illinois, affords unique opportunity as compared with other states for Illinois to develop a comprehensive program for reestablishment of the physically handicapped, beginning with initial physical restoration.

This arrangement will be helpful in affording a demonstration center and in giving guidance to existing hospitals and other medical agencies in working out the program of complete restoration of their patients following care for acute ailments. It will at the same time be a means of caring for that small percentage of cases registered with the rehabilitation service that otherwise would go without adequate hospital attention for lack of local facilities. Such a plan would assure the State rehabilitation service of opportunity to work out the provisions of the law in a limited number of cases completely under its own control.

USING FACILITIES OF COMMUNITIES

The main principle in connection with physical restoration of handicapped persons, however, should be that of use and development of existing facilities in the various communities. The Rehabilitation Service should constantly disseminate information regarding existing clinical and hospital facilities. A limited number of post-operative cases might be received at the Central Hospital Group from other hospitals, for functional restoration, but the circumstances of medical supervision of cases are such that in most instances this cannot be done, and physical restoration will depend upon the facilities and staffs of local hospitals, clinics and dispensaries. At the present time two of the leading hospitals in Chicago are planning extensions of plant affecting the functional restoration of patients.

The work of hospitals and other agencies in noting and treating cases of prospective handicap and in reporting them to the State Rehabilitation Service, will be furthered by the adoption of uniform nomenclature, in recording diagnoses.‡

† See Appendix D-4.
‡ See Appendix A-3.

A system of State licensing and inspection, by showing the necessity of high standards, would add weight to the pleas of hospital executives for increased facilities. Regarding hospitals handling industrial accidents, it would seem to be an essential procedure for the State in some way to pass upon the type of restorative service rendered in cases coming before the State Industrial Commission.* The recently adopted plan of certification of hospitals under the Medical Practice Act, for internships prior to granting the medical degree, may provide a helpful means of improving the arrangements of the leading hospitals for functional treatment.

FACILITIES FOR CONVALESCENT CARE

While the problem of rehabilitation is not identical with that of convalescent care, a large proportion of convalescent patients need rehabilitation, and in many cases an important part of the process of reconstruction takes place during the period of convalescence. It would be well for the Central Hospital Group to include facilities for adequate convalescent treatment for all their Rehabilitation Service patients. The arrangement would correspond in principle to that of the Army Hospitals, in which it was required that all possible be done for the physical restoration of the patient before discharge. The convalescent facilities in Chicago, for example, are known to be inadequate. There are apparently‡ less than 125 beds in institutions available the year round. It is said that the average convalescent case needs care for a period of ten weeks. If an operative or medical bed is occupied on the average by a patient for two weeks, this would indicate that there should be in the community five convalescent beds for every operative bed. The number of convalescent beds thus required in special institutions would be reduced in proportion to possibility of satisfactory convalescent treatment in homes.

Whatever the shortage in convalescent facilities in Illinois communities, the situation has a direct bearing upon the success of a State Rehabilitation Service, and experience in the work of reconstruction would lend valuable support to the movement to increase facilities for convalescent care.

COOPERATION OF INDUSTRIAL CONCERNS AND INSURANCE COMPANIES IN THE PHYSICAL RESTORATION OF DISABLED PERSONS

The work of industrial concerns and of casualty insurance companies will be affected by the operation of the Rehabilitation Act, and their intelligent cooperation is essential to the success of the plan.† In dealing with industrial establishments the Rehabilitation Service will emphasize the importance of medical departments and of job analyses. These are the chief means of guarantying that employees will be placed

* See Appendix F-6.

‡ The Social Service Directory, published by the Department of Public Welfare, City of Chicago, 1918 edition.

† See Appendix F-7.

in jobs for which they are physically qualified. Analyses of jobs should include specific indication of the possibility of performance by persons with any of the more common types of disability. In sending a man whose physical capacities are understood, to a task whose physical requirements are known, and in safeguarding the processes of promotion and transfer, room is made for the employment of an indefinitely large number of the physically handicapped and a barrier is erected against the occurrence of accidents and disease. The improvement of medical service, especially of a preventive nature, tends to establish a better relationship between man and job.

Establishments that pay more attention to these matters will be sought both by the handicapped worker and by the able-bodied. When industrial firms and insurance companies have gone as far as possible in this direction, and especially when they have used every device and incentive in the reestablishment of disabled employees, mutual understanding and successful rehabilitation will tend to take the place of mistrust and tragic deterioration such as now frequently follow injuries to workmen.

Representatives of insurance companies have taken an interest in the progress of the present study of the physically handicapped in Illinois and have been generous in furnishing information. An insurance company is now establishing at Chicago a clinic for functional restoration and there is good reason to believe that all the leading companies will readily undertake whatever work the State Rehabilitation Service may show to be practical in the physical reconstruction of employees of concerns insuring with them.

RELATIONS WITH ADMINISTRATION OF THE WORKMEN'S COMPENSATION ACT

The establishment of the State Rehabilitation Service will be a long step in the direction of broadening the benefits of the Workmen's Compensation Act.* Rehabilitation Aids on visiting injured workmen will acquaint them with their opportunities under the Compensation Act and especially with the constructive purpose of the law. They will guard them against the effects of misinformation and afford an influence toward fair judgment in situations which usually are colored with distress and the spirit of accusation.

By affording a channel of information about individual cases coming under the Compensation Act, their work will facilitate high grade medical and surgical service and settlements based on clearer representation of facts. The State Rehabilitation Bureau in New Jersey is reported to have reduced the amount of settlement for permanent total disabilities in 90 per cent of the cases they have handled. This has been welcomed by industrial firms and insurance carriers, and at the same

* See Appendix B-2, F-5, F-6.

time the physical improvement has been of great benefit to the injured men.

Prosthetic appliances are only rarely furnished as a part of required medical treatment under the Compensation Act. In some states they are specifically required in all cases in which they are needed. It is suggested that this requirement be incorporated in the Illinois law.

Many persons who are severely injured make settlements with their employers before the exact nature of their injuries is known. Following settlement, they fail to secure such surgical, medical or physio-therapeutic treatment as may be needed to restore function in the injured part of the body. Case descriptions illustrating this practice are presented in the appendix to this report. The Compensation Act, which now allows early settlement, in many instances to the detriment of the injured person's physical rehabilitation, could be made to favor the man's restoration by providing that no final settlement shall be entered into until the employing organization has shown, by competent medical testimony, that no further improvement can be expected from medical or surgical treatment.

The purpose of the Rehabilitation Service as indicated in the law, and especially the need of maintaining confidential relations with the handicapped individual, favor the separation of the Rehabilitation Service completely from the medical section of the State Industrial Commission.

ARTIFICAL APPLIANCES

The law provides that the Department of Public Welfare shall "procure and furnish at cost to physically handicapped persons, registered with the Department of Public Welfare, artificial limbs and other orthopedic and prosthetic appliances to be paid for in easy instalments."

From such evidence as we have obtained, it seems probable that the entry of the State into this field of furnishing prosthetic appliances will be of advantage to the handicapped person of small means and will be welcomed by medical agencies and leading practitioners.* Lack of prosthetic appliances has been found to be frequent among the physically handicapped in Illinois who are unemployed, and those successfully employed have been found to be supplied with such appliances. The manufacture of prosthetic appliances has been revolutionized as a result of the war: models have been improved and the utility of various devices more carefully determined. The great demand for appliances on the part of the Federal government, the establishment of the Canadian Government Limb Shop and the production of artificial limbs on a non-commercial basis by the Institute for Crippled and Disabled Men in New York, are major developments the effect of which on the commercial trade are scarcely yet apparent.

Two courses are open to the State in the application of this section of the act. The first involves patronage of commercial manufacturers.

* See Appendix F-2, F-3.

The Department of Public Welfare may purchase limbs and other appliances as needed, perhaps at a slight reduction in cost for quantity, and resell to persons registered under the Rehabilitation Service on easy terms. The saving over list price of appliances in this way would probably be small, merely offsetting the cost to the private concern of solicitation of individual sales. Or the Rehabilitation Service may be simply a go-between for the manufacturer in establishing connections with the disabled man, facilitating the sale and assuring the firm of complete reimbursement in case the man fails to pay. This latter practice is being followed by the state bureau in Pennsylvania. The main advantage, as far as improving the quality of the service to the disabled goes, seems to be that of supervising the transaction and the fitting of the limb. The State department is relieved of the expense of travel and of making various adjustments in supplying the needs of disabled person in widely separated localities.

The other possible procedure would be for the State Department of Public Welfare to enter upon the manufacture of prosthetic appliances according to the plan of the Canadian Government Limb Shop at Toronto. They report that they are now issuing artificial legs, for example, at a cost of $71.57 such as could not be purchased from private concerns for less than $180. In addition to the saving on manufacture, they save also the cost of solicitation. They guarantee the quality of the limb. About the same saving is reported by the artificial limb shop of the Institute for Crippled and Disabled Men in New York. The Government Limb Shop is undoubtedly the dominating factor in the trade in Canada, and it is working in the direction of improving the quality of materials and workmanship and the standardization of accessory parts and appliances issued to the disabled man.

If the State were to enter upon the manufacture of prosthetic appliances, some opposition on the part of private concerns would have to be reckoned with—coming in the beginning perhaps largely through misunderstanding of the intention of the State to serve a limited clientele that ordinarily are not profitable for private sales.

The most important consideration would probably be the capacity of the State through the Department of Public Welfare to conduct a manufacturing enterprise such as this with a high degree of efficiency. Skilled makers and fitters would have to be employed and the business maintained steadily through an initial period when standards were being established and the relations of supply and demand determined. The Canadian project has been favored through statutory prohibition of derogatory statements on the part of private concerns and through the right of the National Government to take advantage of all patents granted for improvements of prosthetic appliances.

The need of manufacture by the State and the possibilities of succeeding with the enterprise are more evident as regards orthopedic

braces.* Braces are used more frequently for children than for adults, and a State undertaking of this kind of manufacture would naturally be based on a recognition of responsibility for problems of physical handicap affecting persons under 16 years of age. This interest on the part of the State is evidenced by its provision of orthopedic wards for children in the Central Hospital Group now being established. Early use of braces may prevent physical handicap in later years. The cost of providing braces for growing children is burdensome and often prohibitive, according to the experience of charitable agencies. The wave of infantile paralysis that has affected Illinois has added materially to the need of the State's entry into the field of manufacture. In New York City five hospitals are operating brace shops on a non-commercial basis. In Chicago the business is entirely commercial.

It is suggested that special inquiry be made by the Department of Public Welfare into the possibilities of manufacturing prosthetic appliances and braces in connection with the administration of the Rehabilitation Act and of the Central Hospital Group.

VI. INDUSTRIAL REHABILITATION

After physical restoration, the law provides for reestablishment at remunerative occupations. The following methods are indicated:

Vocational training, directly or through arrangement with local schools or industries.

Placement, through cooperation with the State Free Employment Bureaus.

The final step in the work of rehabilitation, as indicated in the law, is reestablishment at remunerative occupation. Hence the conditions of industry that may favor or retard reestablishment need to be examined.

INDUSTRIAL CONDITIONS

A study has been made by the survey staff of opportunities for employment of physically handicapped persons in 23 industrial plants in and near Chicago, representing the range of industrial occupations.†

The characteristic processes and jobs were examined as to possibility of performance by men with various types of disability. In these plants, having a total employed force of 13,400, it was found that 6,411 positions could be filled by handicapped workers, as far as the effects of their physical disabilities were concerned. This is 9 per cent of the total number of employees. The least handicapping of the disabilities that were selected for study were:

1. Amputation or lack of use of one leg.
2. Hernia.
3. Defective hearing.
4. Deafness.
5. Amputation or lack of use of fingers.

* See Appendix C-3.
† See Appendix F-1.

For several types of disability few possible jobs were found. No place for a person without arms was discovered among the 92 jobs selected for study. This study shows that there is a large number of jobs possible of performance by the physically disabled, in comparison with the number who may be seeking work, and that special attention will be required to find work for persons with certain types of disability. The physical possibility of performing a job was found to be of less importance in many instances in placing the disabled at work, than such considerations as the attitude of the employer, attractiveness of the work, trade unionism and the man's intelligence and training.

In most of these plants disabled employees are put at work alongside the able-bodied, but in the assembly departments of two establishments studied, the disabled are grouped.

Information has been secured regarding 82 handicapped persons employed in ten of these plants.† These employees have, in most instances, only minor disabilities. Two-thirds of them are receiving wages of $25 or more a week. A fourth of the number are 50 years of age and over, most of these older workmen having been with their firms for more than 10 years. Only a fourth of the entire number were disabled in the service of their present employers. Sixty-seven, of the 82, were either working at the same occupation as before injury or had other jobs on the same industrial level. Twelve were shown to have changed for the worse and 3 to have improved in their employment, since becoming handicapped. In addition to two soldiers in training, 5 others had been retrained on account of disabilities for periods ranging from two weeks to six months. These disabled employees represent more than 1 per cent of the total employed force of the plants in which they are working. No examination has been made in individual instances to see how successful has been the arrangement for reemployment.

This study shows that industries may be expected to do the work of reestablishment in many cases. Certain types of concerns will employ the less seriously disabled and the more promising of the severely handicapped, without reference to the State Rehabilitation Service. The smaller concerns do not have so great a variety of jobs nor are they so well equipped for retraining.

It is the impression of officers of the State Industrial Commission that at present fully nine-tenths of those who receive compensation for temporary injuries are reemployed in the plants in which they were injured. Regarding instances of more serious injury, a special study* has been made of the circumstances of reemployment of 2,089 persons whose disabilities occurred during the year 1919. It is found that 66.5 per cent of these were reemployed, at least for a short time by the same concern. Three-fourths of those reemployed were put back at their former jobs. Young men seriously injured are found to have a better

† See Appendix F-2.
* See Appendix F-4.

chance of being retrained by their employers than older ones. The various industries are found to be evenly represented as to the question of returning severely injured men to former employers, with a few exceptions such as "construction and building," in which only 1 of 37 men went back to the same plant. Scarcely any systematic retraining had been given the men who were reemployed. The problems suggested by this study are to be dealt with partly through the adoption by industrial concerns of better plans of physical restoration of injured employees, and partly also through adoption of systematic measures for retraining and reestablishing them.

Employers have indicated that they see the need of rehabilitation work, and that they are ready to assume their appropriate share.† The manager of a medium sized establishment, for example, says that he has at his disposal a fund of $5,000 to meet the special expenses of training disabled persons for work in his establishment, and that he will be satisfied if he succeeds with half of the handicapped persons who apply. The manager of another plant has requested assistance in securing a teacher of deaf apprentices. The Industrial Relations Association of Chicago, consisting of employment managers from the larger concerns, recently has named a committee to cooperate with the State in the placement of the physically handicapped.

The reestablishment of injured employees in the larger industries, such as the railroads, cannot be carried on to advantage by outside agencies.* Rehabilitation departments within the industries themselves are required, in order to take advantage of special knowledge of industrial conditions and opportunities of pension regulations and channels of advancement, of the operation of relief funds, etc. A few larger concerns in other states are known to have established rehabilitation departments, but none have been found in Illinois.

AVOIDING DISCRIMINATION

One of the chief handicaps to crippled workers is discrimination against their employment. Two of the main causes of this difficulty appear to be removable. One of them lies in the Compensation Act.

Under the law, the employer is required to pay compensation for total permanent disability in case of a second major injury, instead of being responsible only for the disability caused by the second injury when considered independently. For example, if an employee who is blind in one eye loses the second eye, the employer must pay the award for total disability due to blindness, as he would if both eyes had been blinded while in his service. The employment managers of five plants that were surveyed objected strongly to the employment of handicapped persons on account of increasing the hazard of the work. These con-

† See Appendix F-12.
* See Appendix F-8.

cerns employed a total of nearly 10,000 people. In two of these plants no disabled persons were being employed.

The remedy lies in the adoption of the special fund plan already in operation in eight states.* According to this plan the employee is compensated for the disability resulting from the combined injuries. The additional compensation for the extra liability is paid out of a special fund provided by the State. Under such a provision in New York only eight cases have occurred since the passage of the law four years ago.

From this it appears that the actual liability of loss to the employer under the present Illinois arrangement is almost negligible. Nevertheless there is a fear of risk even though it is not substantiated by the real hazard, and it would be of assistance to the physically handicapped to make the legislative provision described.

Discrimination against employment of the physically handicapped also arises out of the idea which has been found to exist among employers who carry casualty insurance, that rates will be increased if they employ disabled workmen.† No study is known to have been made of the added risk that is due to employment of the disabled. Whether there would be any increase in risk would depend upon the care with which jobs were selected for the handicapped, and the regulation of transfers within plants. With the development of rehabilitation work under the auspices of the State and of industrial concerns, this liability may be expected to be reduced. A prohibition of increase of rates by insurance companies on account of employment of the disabled would spread the added risk, in whatever degree it may occur, among insuring concerns.

In Minnesota a law has been enacted prohibiting insurance companies from raising rates on account of the employment of physically handicapped persons.‡ The director of rehabilitation work in that state reports that the question of discriminatory rates comes up frequently and that such discrimination has evidently occurred in the past. Recently, however, there appears to have been very little raising of rates. The law prohibiting discriminatory rates seems to the rehabilitation bureau to be a good measure because employers are now assured that they can employ handicapped workers without having to pay higher premiums. Conditions in Illinois seem to be similar to those in Minnesota, and legislation of this nature would probably reenforce the present Rehabilitation Act.

VOCATIONAL TRAINING

The Rehabilitation Act provides that the State Department of Public Welfare shall have authority and it shall be its duty:

> To establish and conduct a school of rehabilitation and branches as they may be needed.

* "Monthly Labor Review," December, 1919, p. 329.
† See Appendix F-7.
‡ See Appendix F-11.

To arrange for training courses in the public schools, or other educational institutions, or in commercial or industrial establishments.

A need of elementary education is evident with many physically handicapped persons who have been included in this survey. An outstanding example is the group of 25 injured coal miners described in the Appendix, only 11 of whom can read and write English.† Among the severely disabled included in the study of working class districts in Chicago, those who surmounted their difficulties were found to be better educated and Americanized than the others. A large proportion of injuries occur at low-skilled, repetitive jobs, into which workers with poor education and little industrial training tend to drift. Persons of this type are not well fortified against the consequences of physical disability, and their rehabilitation requires especial emphasis upon vocational education.

The only example of a special school of the kind described in the act is that conducted by the Institute for Crippled and Disabled Men in New York City. The enrollment and results of training in the ten courses offered by the institute during a period of two years are reported as follows:*

STATISTICS OF TRAINING DEPARTMENT.

	Total.	Drafting.	Artificial limb.	Printing.	Motion picture.	Welding.	Jewelry.	Typewriter repairs.	Plating.	Enameling.	Telephone operator.
Number enrolled	336	20	7	31	73	85	53	38	6	7	16
Did not begin to work	61	------	------	5	22	16	6	8	1	1	2
Transferred to another class	15	3	------	1	2	2	3	3	1	------	------
Continued training elsewhere	11	1	------	1	------	3	5	1	------	------	------
Found other work	20	2	1	1	------	8	2	4	1	------	1
Unsuitable	25	4	2	5	3	4	4	1	1	------	1
Quit on account of health	13	------	------	1	2	2	4	4	------	------	------
Quit—no reason	25	1	2	1	8	7	3	2	------	1	------
Placed in work trained for	115	9	2	16	28	29	12	6	1	1	11
In training May 1, 1920	51	------	------	------	8	14	14	9	1	4	1

The chief advantages of conducting this school seem to have been in the immediate facilities for training which could be used directly for any disabled person, by the same organization that was supervising his rehabilitation in other ways. The training departments in addition have afforded a laboratory for discovering the aptitudes of applicants. The sight of handicapped men in training is encouraging to disabled persons who visit the institute for the first time.

† See Appendix B-1, B-2, E-2.

* "Three Years of Work for Handicapped Men," p 42, a report of the activities of the Institute for Crippled and Disabled Men, by John Culbert Faries.

These advantages can be attained largely through the establishment of "opportunity shops" at the main rehabilitation center and its branches, under the supervision of capable vocational instructors and well equipped for initial training in mechanical and related subjects. The idea of the opportunity school has been developed in vocational training for children, as exemplified in the Denver Opportunity School and at the Manhattan Trade School in New York. These schools are equipped for instruction in a great variety of trades, and those who enroll are not required to select at once specific courses, but are encouraged to "try their hands" for brief periods, at various pursuits. This principle of the opportunity school has been adopted to a certain extent by the Federal Board for Vocational Education in the retraining of disabled soldiers. An example is the use that is made of the Washburn School in Chicago, where nearly 600 men are in training.

The chief value of an opportunity shop, or vocation-finding laboratory, would be in providing a staff and mechanical equipment that would help a disabled man quickly to establish an understanding of a new occupation and a determination to take it up. By this means occupational therapy would be related as closely as possible to vocational training, and the period required for reestablishment in industry would be shortened. Whether complete trade courses should be given in the opportunity shop may be decided after the demand has been tested out.

In the vocational guidance and training of disabled persons an obstacle appears in the fact that a course of action cannot be arrived at by any formula. In each individual instance, specific abilities must be balanced against mental capacity and attitude and many other considerations. To have an opportunity shop associated with the State Hospital Group would be of practical advantage in that personal aptitudes discovered during the course of convalescence might be developed further in the training laboratory. This connection would be of advantage also in that it would offer facilities for trying out and making adjustments to prosthetic appliances, such as might be necessary in any case for the pursuit of a given occupation.

Such opportunity shops would be most useful in work with cases in which vocational possibilities are not evident. Experience with them would help to establish principles for dealing with the larger proportion of the handicapped registered with the rehabilitation service, whose inclinations and capacities were more easily determined.

It is desirable that the abilities of difficult or doubtful cases be tried out first-hand. This would prove an aid not only in successful placement, but also in the development of a reputation for reliability in employment of the disabled. Such trade testing was found to be essential in the assortment and placement of soldiers in mechanical positions during the war. At the time of the Armistice 70 per cent of all soldiers who claimed trade ability could be tested.* The results of tests of those

* "The Army Trade Tests," William T. Bawden (pamphlet), pp. 5-6.

who claimed to be mechanics showed that 6 per cent were experts, that 24 per cent were journeymen, that 40 per cent were of apprentice grade and that 30 per cent were inexperienced. For the British army, a plant was established in Woolwich Arsenal, in which soldiers were classified for mechanical work through performance tests. The opportunity shops suggested will afford facilities for performance tests of ability of the physically handicapped prior to placement.

Eighty-two per cent of the industrially injured who were given assistance by the Pennsylvania Bureau of Rehabilitation during the first seven months of its operation were either placed immediately at work or given placement training in industrial plants.† Placement training has come to be emphasized in the vocational program for soldiers, especially in recent months when initial courses of an academic nature are being concluded. The importance of depending upon the industries themselves for training is evidenced also in the work of the Department of Soldiers Civil Reestablishment of Canada. This method offers the special advantage of apprenticeship at a job in which the man may expect to continue, usually on wages from the beginning.

The maturity and occupational connections of the civilian handicapped and the fact that many live in localities where classes cannot be organized will probably require that placement training in industrial establishments be the chief method of vocational education under the Rehabilitation Act.‡

A study has been made of placement training in industrial plants in and near Chicago. Of 435 leading firms canvassed by letter, 231 replied.§ Thirty-nine, or 17 per cent, of these reported they were giving training. About half of these, averaging 3,000 employees each, reported organization and courses sufficiently extensive to warrant study of their methods and comparison of results. A number of firms have indicated their intention of starting training courses at an early date.

ORGANIZATION FOR PLACEMENT

Training and advancement will be provided more frequently through skillful placement than through formal education. The disabled man's chief wish is usually to secure a good job. This is shown, for example, by the experience of the Institute for Crippled and Disabled Men in New York in making contacts with the handicapped through newspaper advertisements. Little response was received to the advertisement of training courses open to disabled persons, but many men came in on reading the advertisement that an employment bureau was being conducted for the disabled. Forty-one per cent of the more serious injuries coming before the State Industrial Commission during 1919 were sus-

† See Appendix A-5.
‡ See Appendix B-2.
§ See Appendix E-1.

tained by persons over 35 years of age. The age, the mental maturity and the economic circumstances of many handicapped persons, require the adaptation of the service of industrial rehabilitation to immediate placement.

In placement work under the Rehabilitation Act, the purpose of the State, through whatever channels it may be attained is the reduction of unemployment and of poor employment due to physical handicap. The State undertakes to assist all of the disabled in securing employment and, for those who are placed, to recommend as good jobs as possible. Emergency placement to prevent imminent poverty and unemployment, is necessary for many persons now applying at employment bureaus, but under the provisions of the Rehabilitation Act it will usually be avoided by establishing relations with a man at the time of occurrence of disability, before the need of employment has become acute.

The majority of physically handicapped persons in need of employment who are not registered in connection with physical restoration or industrial training may be expected to negotiate employment directly with industrial concerns without the aid of the State. This is evident from studies of industrial plants that have been made as described above.* Attention to the physical needs and to the employment of the disabled, on the part of industries, will tend to reduce the number of persons applying to the State rehabilitation service and public employment bureaus. Their service to the disabled will be increased and improved through surveys of industrial plants made under the auspices of the State rehabilitation service, to discover openings for the physically handicapped, and through advisory relations with employment managers and industrial surgeons.

Occasionally with the less seriously handicapped, however, and frequently with those suffering from major disabilities, difficulties are met with other than that of physical unfitness of the man for the job.† These include his attitude and that of his employer, the location of the work, the conditions of transfer and opportunities for advancement, monotony, etc. These conditions in the industrial situation and in the handicapped man's personality in every instance require investigation prior to placement.

Those whose circumstances thus need special investigation, and those who have come to the attention of the State in connection with physical restoration or industrial training, will make up the group who require the supervision of the State rehabilitation service in connection with placement. In assisting such persons in securing employment, rehabilitation aids will consult with officers of the Free Employment Bureau, if such a bureau exists in the locality. By this arrangement the services of the State employment offices will be used and at the same

* See Appendix F-10.
† See Appendix F-1.

time advantage will be taken of the knowledge and understanding that exists between the rehabilitation aid and the disabled man.

The Illinois Free Employment Bureaus have received applications from more than 60 disabled men.* Publicity that would be given the establishment of the State rehabilitation service may be expected to increase the number of applications of disabled persons at the free employment bureaus. The number of applicants that may be expected by the employment bureaus and by the rehabilitation service is suggested by the fact that at the bureau conducted by the Institute for Crippled and Disabled Men in New York City, an average of 1,100 persons have applied each year for two years, and that at the corresponding bureau in Cleveland about 700 have applied in eleven months.

The inclusion in the law of a provision for cooperation in placement work between the Department of Public Welfare and the Department of Labor suggests the desirability of an arrangement whereby the registration of any physically handicapped person with a free employment bureau would bring him all the advantages of the rehabilitation service. The State free employment bureaus are equipped chiefly for handling great numbers of ablebodied applicants and aiding them in securing jobs immediately. The plan of rehabilitation of the physically handicapped calls for thorough matching of a man's qualifications with industrial opportunities and the improvement of conditions, or elimination of those obstacles in his home situation or in his mind which are in the way of advancement. Arrangement for liaison officers between the rehabilitation service and the free employment bureaus would provide for applicants requiring more extensive consultation and investigation. Through this channel it would be possible to make constant use of industrial studies such as are contemplated in the law and to give assistance with respect to physical restoration, artificial appliances, or industrial training.

RESIDUAL CASES

A certain number will be found who cannot be trained to the degree of efficiency that is necessary in working alongside others at standard industrial pursuits, or whose inclinations and habits are strongly set against regular employment. A picture of these classes as sifted out in the rehabilitation process is afforded in the experience of the Institute for Crippled and Disabled Men in New York City. Among the unplaceable they find the man who is paralytic, the epileptic, and those with communicable diseases, the man with a double arm amputation, the man of clerical type with paralysis of one side and speech defects, and the man who has formed mendicant habits. To this group should be added the bedfast or otherwise housebound, and wheelchair cases. In addition to the shut-ins, the very seriously disabled and those who present extreme temperamental problems, the residual group will be

* See Appendix F-9, F-3

found to include also a number whose difficulty is magnified by family situations and by industrial conditions in their localities.

The first concern of the State is in the adoption of methods that will succeed with the larger proportion of the physically handicapped. With some of the residual types described rehabilitation work may be undertaken through private philanthropy. In Boston for many years workrooms have been maintained for handicapped women. The payment of wages through charitable subsidy of workshops may lead to the handling of persons in this manner for whom an enterprising placement officer would be able to find work in private industrial establishments. For severely handicapped soldiers, Canada is experimenting with so-called vet-craft shops. They have no immediate expectation of getting these shops on a self-supporting basis, however. The present State law providing pensions for the adult blind suggests a possible solution for problems of extreme handicap sifted out through the operation of the Rehabilitation Act.

VII. PREVENTION, RESEARCH AND PUBLICITY

THE PREVENTION OF DISABILITIES

While the rehabilitation of physically handicapped persons will require the cooperation of many individuals and many agencies, public and private, the prevention of disabilities can be accomplished only by the attention of everyone in the community. Certain conditions have been observed during the survey that relate to a preventive program. These are discussed here under the following headings:

1. Crippled or otherwise defective children.
2. The safety movement.
3. Research and educational publicity.

The key organization for a preventive program in any community is the health center. Such a base of operations in every community would help focus many State-wide undertakings. Dr. Frank Billings has generously contributed to this report a brief outline of organization of a health center, which is included in the Appendix.*

CRIPPLED OR OTHERWISE DEFECTIVE CHILDREN

A. EXAMPLES

Artificial Legs and Self-respect.

Bobbie Kern, 14 years old, American, while "flpping" freight cars fell under the wheels and had both legs cut off above the knees. After three months in the hospital he was discharged, but no effort had been made to teach him to use artificial legs. At his own request he left the hospital after dark and was carried into his home the back way, so that the neighbors could not see him. For ten months he seldom went out-

* See Appendix D-5.

doors, except for an occasional automobile ride, when he was carried out the back way. He was very sensitive about his condition, and his parents were heartbroken. The mother frequently remarked that she would much rather her son had been killed.

A rehabilitation agency became interested in Bobbie and referred him to a hospital. The physiotherapy department gave daily massage, and he was taught to make pressure on the ends of the stumps. At the end of ten days he was fitted with short temporary peg legs, and a month later these were lengthened so that they were approximately two feet long. By means of these temporary legs Bobbie was able to walk, first with crutches, then with a cane, and at the end of four weeks he could walk alone.

On his discharge from the hospital this time Bobbie entered his home by the front door. During his stay in the hospital he was encouraged to take up his school work once more. At the end of four months he was fitted with permanent artificial limbs. He returned to school this fall.

A Crippled Boy Wants a Trade.

Albert suffered from infantile paralysis of both lower limbs. He was slow and dull. The father was a drunkard, the mother was dead and Albert lived with an aunt, who was burdened with a large family of her own. The Spaulding School (for crippled children) clothed and fed the boy and tried to keep up his interest in his studies. Their cobbling equipment was installed when he was in the seventh grade and he took to it as a "duck to water." Every spare minute he went to the cobbling shop and his graduation from eighth grade was due to his efficiency in this line.

A special worker for the handicapped, employed at the Vocational Guidance Bureau, placed him in the shoe repair department at one of the big department stores. They took him as an act of charity, but at the end of the first year they regarded him as a necessity. Last year he received next to the largest bonus in the department. A very happy relation has sprung up between the department head and Albert. They call each other "father" and "son."

Albert has recently been able to discard his crutches indoors and is also riding a bicycle. He is well dressed and self-respecting.

A Child with Weak Heart in Regular School.

Guiseppi had stayed in school seven months past his 14th birthday in order to graduate from the 8th grade. The father was making $25 a week; there were eight children and the mother, an exceptional Italian woman, had been at her wits' end to keep her family going and allow Guiseppi to graduate. They had borrowed money on the expectation of Guiseppi's going to work. But when they came to the certificate issuance office they were told that a certificate could not be issued to

Guiseppi, because of a very bad heart condition. His mother was finally won over to allowing him to have a scholarship (from a fund provided by the Vocational Supervision League) and to continue in school.

A relative of the family in New York is a designer of men's clothing. He has offered to teach Guiseppi the trade when he grows older. If Guiseppi can be guarded so as to preserve his health until that time, he will be well taken care of.

Bordering on the Career of a Useless Cripple.

John, an Italian boy, came with his mother to procure a work certificate shortly after his 14th birthday. He was extremely thin, and had a decided outward curvature of the spine, presumably from an early tubercular condition. The mother was prematurely aged and nearly blind from trachoma. The father and an older brother worked, but the family felt that John had now reached an age when he should contribute.

John was not allowed to work. He was fitted out with clothing and books and induced to return to school. The mother was sent where she could receive treatment for her eyes. Later in the year when Arden Shore Camp was organized, John was sent there. He did not improve much at first and a bursitis of the knee developed. His tonsils were removed, and he improved more rapidly. During the time while he was in the hospital, he wrote one of the vocational guidance staff a letter which indicated literary ability.

After John's physical condition had been built up he came home and was sent back to school. He thought he would like to become a printer, but learned that his handicap would probably bar him from this occupation. He was encouraged to go ahead in school, with the idea of becoming a proof reader. A scholarship (from a fund provided by the Vocational Supervision League) was secured and John was returned to school.

However, the family persists in the idea that this 14-year old cripple should contribute to the family purse.

Reconstructive Surgery.

John West, 12 years old, is one of six children whose parents are very poor. John was born without arms. For four years he attended the Spaulding School for Crippled Children and there he learned to do a great many things for himself, such as opening a door by grasping the knob between his cheek and right shoulder. He could write well by holding the pencil in the same manner, and he could operate a typewriter by using a long stick.

Two leading surgeons and two of the most skilled artificial limb men were consulted and they agreed that artificial arms could be attached to the rudimentary stumps at John's shoulders. Operations were performed successfully. John is now wearing the two artificial arms. With

them he is able to write and eat without difficulty. He shows excellent talent as a cartoonist and is planning to take up this work after he has completed his education. This will be better for him than exhibiting in a museum, a career which John's father had had in mind for him.

B. THE COMMUNITY PROBLEM

More than half of those who are crippled, as shown by the censuses of cripples in Cleveland and New York City, become disabled before the age of 15 years—the point beyond which the Illinois Rehabilitation Act applies. The dwarfing and handicapping effects of physical defects in many instances are not appreciated until the child approaches adult life and is expected to earn a living and take a place in the community. The relation of physical conditions in adult life to causes occurring frequently prior to school age, are reflected in the following statement by Dr. Julius Levy of Newark, New Jersey:*

> Spinal curvature and poor posture, which have given considerable impetus to the movement for physical training, have a basis in anaemia and malnutrition which are the results of improper care and feeding in the first years of life. * * * Particularly deformaties of the bones, such as pigeon breast, bow-legs, knock-knee, weak feet, or flat feet, so frequently found in school children of the poorer neighborhoods, are the result of poor nutrition and bad hygiene that occurs usually between six months and two years. In various schools it has been estimated that from 3 to 30 per cent of the children are suffering from the results of rickets.

Of 2,046 crippled children under 15 years of age discovered in the Cleveland survey, 68 per cent were found to have been disabled before reaching the age of 5 years.

Childhood is preeminently the period for the correction of abnormal physical conditions that later may interfere with remunerative occupation. Physical restoration and education, up to the point of employment, if the child is not to continue in school, can be carried on with the best results before the age of 16 has been reached. It is to the interest of the State that, of all children, those should be given most attention in physical development and vocational preparation whose adjustment in later life is most apt to constitute a public problem.

The chief means whereby boards of education may know of the existence of crippled children in the community is the school census.† The census schedules used in some Illinois cities makes specific provision for listing crippled or otherwise handicapped children. Information received in this way in Chicago is supplemented by reports from visiting nurses and truant officers. Parents of defective children are inclined to conceal them from census enumerators. Experience with the survey to date leads to the belief that better understanding on the part of the parents would result in the listing of many crippled children who are not now carried on school records.

* The Survey, May 15, 1920, p. 245.
† See Appendix B-1.

The most extensive educational provisions in any community of the State, for the various classes of crippled or otherwise defective children, is that made by the Chicago Board of Education. At the Spaulding School for Crippled Children, 300 day pupils are assembled for regular instruction with special facilities for medical care, muscle development, nutrition and occupational therapy. The entire work of the Board of Education for physical defectives is summarized in the following table:

PHYSICALLY HANDICAPPED CHILDREN OF SCHOOL AGE IN CHICAGO

Enrollment in special schools and classes under Board of Education, November 30, 1920, and estimate of number for whom no special provision is made.* No special provision is made in the schools for children with defective hearts, and no estimate of their number is included in the following table. Dr. Julius Levy, of Newark, estimates that two per cent of school children in New Jersey have heart disease. Two per cent of the population of compulsory school age of Chicago would be approximately 10,000.

Physical condition.	School grouping.	Number.		Remarks.
		Under care.	Uncared for.	
Crippled	Spaulding School 288			
	Jahn School 85			
	Fallon School 154	527		
	Not in special schools (estimate).			Out of bounds of busses or parents object.
	In no schools 300			
	In regular schools 1,200		1,500	
Anaemic	54 classes in 23 schools, annual enrollment	1,750		1. Contact cases, tuberculosis in family.
	(Only 1 in 15 of anaemic are being given special care according to estimate of Dr. Bruner).			2. Glandular cases or those with healed pulmonary scars.
				3. Malnourished and anaemic (blood count less than 75).
Epileptic	3 schools	22		
Blind	4 classes	46		
Semi-blind	1 class	15		Attending regular schools, parents object to their taking cars to attend special schools.
Deaf	4 schools	324		
	Not in special school (estimate)		325	
Defective speech	Enrollment	2,200		
	Special teachers 12			About 600 stammer, remaining having defects of articulation.
	Children are treated individually twice each week.			
	In districts where no special instruction is provided (estimate)		8,800	

If Chicago has as many crippled children under 15 years of age in proportion to population as were discovered in Cleveland in the city-wide canvass of that community, there would be 4,168, of whom 3,423 would be of the ages 5-14 years. This number is to be compared, according to definition adopted in the Cleveland study, only to the two items in the foregoing table under "Crippled" (under special care, 527; estimated not under special care 1,500).

* Special report (by letter) from Dr. Frank G. Bruner, Director of Special Schools.

The survey staff has communicated with school boards throughout the State, suggesting that special attention be paid to securing information regarding physically handicapped children.

An exact interpretation of the statistics of medical inspection of schools in terms of physical handicap is not possible. The elimination of any physical defects in childhood, however, will tend to reduce the public problems of physical handicap in adult life. School physicians and nurses are reported* for cities located in 77 of the 102 counties of Illinois, the number of physicians being 44 and the number of nurses 249. The extent to which they are engaged in supervision of the physical development of children, as distinguished from inspection merely to detect contagious diseases, is shown by answers to a questionnaire from the survey office which are summarized as follows:

Inspection for contagious diseases only—number of counties reporting	38
Inspection for physical defects—number of counties reporting	8
Number of cities and districts in these eight counties for which physical inspection is reported	9
Rural inspection for physical defects	2

Certain cities, including Cincinnati, Milwaukee and Grand Rapids, have adopted record forms which include information about physical condition and development, by the use of which continuous account is kept of every child from the day he is first known to the board of education until he finishes school or leaves the city. This plan is in operation in the tri-cities, LaSalle, Peru and Oglesby. The extent of its use elsewhere in Illinois has not been ascertained. Such an arrangement is necessary to assure constant attention to the physical development of school children. It is especially desirable in case of the physically handicapped or those with defects such as may develop into permanent handicaps.

Under the Board of Education of Chicago provision is made for physical examination of all children between 14 and 16 years of age who apply for work certificates. Those found to be seriously defective are prohibited from work, and through social service organization an effort is made to secure for them medical attention, proper home care, and recreation. The statistics of this bureau reveal the extent of physical handicap among working children. Nearly one-third of those examined are found to have physical defects of such seriousness as to require withholding work certificates. The following table shows the kinds of defects noted and their comparative importance:

PERCENTAGE OF DEFECTS AMONG WORKING CHILDREN, EXAMINATIONS BY VOCATIONAL GUIDANCE BUREAU, CHICAGO BOARD OF EDUCATION YEAR ENDING JUNE 30, 1920.

Number of examinations	52,151
Number of cases in which defects were discovered	16,081
Percentage	31 per cent

* Illinois School Directory, 1919-20, pp. 112-14.

COMPARATIVE IMPORTANCE OF DEFECTS AMONG 6,307 CHILDREN REFUSED CERTIFICATES FOR THE FIRST TIME.

Defective vision	30 per cent
Nose and throat findings, nasal obstructions	20 per cent
Malnutrition, size and weight	29 per cent
Defective teeth	11 per cent
Skin—pediculosis	4 per cent
Cardiac findings	2 per cent
Pulmonary findings	1 per cent
Thyroid enlargement with toxic symptoms	1 per cent

Defective conditions amounting to 1 per cent: Subnormal nervous condition, hernia, malformations, deformities, defective hearing—discharging ears, genito-urinary, glands, defective speech, kidney, jaundice.

To assure proper attention to defects that have been discovered, the medical resources of every community need to be planned in relation to local needs. Institutional facilities include the number of beds in the orthopedic services of hospitals, the facilities of convalescent homes, sanatoria, children's clinics and heart clinics, open-window schools, and summer outings for children.

Local facilities may be supplemented in handling many children's cases by the use of State agencies. Through clinics in six cities during the two years 1917-18, the State Department of Health* ministered "to an average of 117 crippled children each week, 80 per cent of whom are the victims of infantile paralysis and the remaining 20 per cent crippled by other diseases such as tuberculosis, rickets, cerebral palsy and accident." During the past year in its community clinics for trachoma, the State Department of Public Welfare has examined 355 children of ages between 5 and 16 years. The Surgical Institue for Children to be established as part of the Central Group of Hospitals under the auspices of the Department of Public Welfare and the University of Illinois will afford facilities for many acute cases.

In order to reduce the number of physically disabled persons arriving at the age of 16 years with such handicaps as to require the attention of the State Rehabilitation Service, it is desirable that a preventive plan be adopted in every community. This will require that all children of school age be examined periodically for physical defects and that those with handicapping disabilities be given the maximum education for which they are mentally fitted, the possible need of remunerative employment being considered in every case, and arrangements made for vocational guidance.

Under the British Education Act, boards of education are authorized under exceptional circumstances to make any provision, including board and lodging, "which they think best suited for the purpose of enabling * * * children to receive the benefit of efficient elementary education." Local education authorities are required to pay for physically defective children in suitable hospital schools, where they exist; and in case none have been established, to provide them before March, 1927. Local boards are, in addition, given supervision over the working conditions of children, if the work is reported to have harmful effects.

* Report of directors under the Civil Administrative Code, 1918, p. 494; subsequent report available in January, 1921.

SAFETY MOVEMENT

The importance of accidents as causes of physical disability is indicated in the results of the Massachusetts and Cleveland censuses, as shown by the following table:

PROPORTION OF DISABILITIES DUE TO ACCIDENT.

	At occupation.	Otherwise.	Per cent of total number of of cripples.
Massachusetts census, 1905—17,134 cases	13.4 per cent	28.5 per cent	41.9 per cent
Cleveland survey, 1916—4,186 cases	11. per cent	32. per cent	43. per cent

These results, with striking coincidence, show over 40 per cent of all disabilities to be due to accidents, about one-fourth of which are industrial injuries.

Approximately 40,000 injuries at work come to the attention of the State Industrial Commission every year.* The Illinois Compensation Act, it is estimated, covers approximately 55 per cent of all employees in various industries in the State. About nine-tenths of these are classified as temporary injuries.

The safety movement has demonstrated the possibility of preventing accidental injuries. Industrial concerns that have been associated with this movement have in some instances reduced the number of injuries by as much as 80 per cent. Communities that have been organized for accident prevention during the "no accident week" when the National Safety Council is holding its annual meeting, have reduced the number of accidental deaths by amounts ranging from 80 to 100 per cent.

A study of "The Safety Movement in the Iron and Steel Industry" made by the United States Department of Labor for the period from 1907 to 1917 shows that in this kind of work "fatal accidents and serious accidents are primarily due to fundamental engineering or structural defects in which the workman has no part."† The remedy lies partly in the provision of safeguards on dangerous machinery. Standardization of mechanical safe-guards and formulation of safety codes is being worked out by the American Engineering Standards Committee. Legal requirements of such safeguards in Illinois is made in the Factory Act‡ under the title, "Health, Safety and Inspection."

The remedy for the more serious accidents lies also in the provision of safe tools and in requiring safe construction.

The avoidance of industrial accidents depends upon the cooperation both of the worker and of the management. The workman must not only exercise intelligent care, but must have special training in safe practices. Frequently haste leads to accidents.

* See Appendix F-5.
† Bul. U. S. Department of Labor, Bureau of Labor Statistics, June, 1920.
‡ Paragraphs 230-5.

Correlation between compensation administration and accident prevention is shown, through studies made by the United States Bureau of Labor Statistics,† to be an important means of prevention of injuries at work.‡ Such a connection has been provided in the laws of nine states, not including Illinois. In Wisconsin, for example, when an injury is found to be due to the failure of an employer to comply with any safety order of the State Industrial Commission the compensation of the injured person is increased by 15 per cent; if the injury is found to be due to wilful refusal of the employee to use such safe-guards, the compensation is decreased by 15 per cent. In some states having such legislation it is customary for safety regulations to be established only after they have been adopted by employers representing the industries concerned, and for frequent conferences of employers to be held under the auspices of the State Industrial Commission.

Plant safety committees have been organized by more than 300 industrial concerns in Illinois and have in most instances affiliated with the National Safety Council, whose offices are in Chicago. A community safety council has been organized in Chicago with the purpose of preventing accidents of all kinds, including industrial injuries. Flint, Michigan, offers an example of community organization with a paid director on a part time basis who is also on the staff of the local chamber of commerce. St. Louis furnishes an example of a community plan which is being developed through instruction in public and parochial schools.** The plan includes not only instruction regarding safety practices given in the established curriculum, but also the organization of school children with the idea that they shall be responsible for the prevention of accidents. The State Industrial Commission of Ohio stimulates the teaching of safety in the public schools.

The State Rehabilitation Service will afford information about the consequences of industrial accidents and diseases which will be valuable for the purposes of safety education. If safety work should be undertaken as a specialized activity of the State Government, it would be organized most effectively as a division of the Department of Labor. In this way a plan might be formulated for close association with the functions of factory inspection, of compensation administration and of statistics and publicity.

RESEARCH AND EDUCATIONAL PUBLICITY

The Rehabilitation Act provides that it shall be a duty of the Department of Public Welfare:

> **To conduct investigations and surveys of the several industries located in the State to ascertain the occupations within each industry in which physically handicapped persons can enter upon remunerative employment under favorable conditions and work with normal effective-**

† Monthly Labor Review, December, 1919, p. 325.
‡ Monthly Labor Review, December, 1919, p. 5.
** See "Education in Accident Prevention," by E. George Payne.

ness and to determine what practicable changes and adjustments in industrial operations and practice may facilitate such employment.

To make such studies and reports as may be helpful for the operation of this act.

The adaptation of industrial processes and devices and methods of employment to the needs of the physically handicapped requires extensive study. The rapid survey that has been made of industrial plants has shown this to be a profitable subject of study and an indispensable means of establishing connection with employing concerns. Research is needed because rehabilitation of the physically handicapped has only recently been established as a public function and consequently information regarding its practical phases is lacking.

An inquiry sent to the universities and colleges of Illinois at the the beginning of the present survey resulted in a number of expressions of interest in the study, and statements that special topics included in the survey might be chosen as thesis subjects by graduate students. Four graduate students of the University of Chicago have assisted with special phases of the survey to date, and about fifty graduate and under-graduate students have assisted with field work. From this experience it would appear to be desirable to include in the plan for future research, in connection with the administration of this law, an arrangement for the cooperation of graduate students at various colleges and universities.

Under the law it becomes the duty of the Department of Public Welfare "to keep the people of the State informed regarding the operation of this act."

From conditions discovered in the survey it is apparent that the success of the rehabilitation program will depend upon the concerted cooperation of all public and private agencies that are concerned with physically handicapped persons. The effectiveness of the State plan in solving the problem of the physically handicapped will be increased through the establishment of a better understanding of the processes of rehabilitation, so that the work will be done, not so much by the State, as by industries, by medical agencies and by the individuals concerned.

For this purpose it will be desirable to publish the results of treatment of typical cases, the findings of surveys and accounts of progress in work for the physically handicapped in other states.

VIII. SUMMARY AND BUDGET.

VOLUNTARY COMMUNITY AGENCIES

The work of institutions and societies that are concerned with the treatment of physically handicapped persons in Chicago is being studied with a view to determining the extent of their service and its relationship to a public program of rehabilitation.* Likewise inquiry is being

* See Appendix C-1, C-5.

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made into the work of family welfare agencies in other communities. The histories of a number of seriously handicapped persons handled by two family service agencies in Chicago have been examined. They show the importance of an understanding on the part of voluntary agencies of the methods of industrial reestablishment of disabled persons and the advantage that would come from such service as the Rehabilitation Act provides. The more difficult cases on the records of family welfare agencies are in many instances those of families that contain physically handicapped persons.

The value of voluntary agencies in supplementing the work of public departments for physically handicapped persons, is exemplified by the Vocational Supervision League of Chicago. During six months of the year 1920 it rendered special service to 102 handicapped children who sought employment certificates from the Board of Education. Forty-nine were helped to secure specially adapted jobs, 63 were taken to dispensaries, school adjustments were made for 22, and scholarships secured for 8, so that they would not need to work. Service of various other types was rendered, including cooperation with 24 medical and social agencies.

Voluntary agencies organized for assistance to specific groups of physically handicapped persons are able to render service to their groups which cannot easily be provided through State organization. Work for the partially deaf, for example, as stated by the Chicago League for Hard of Hearing:*

> has to do with those who in adult life are confronted with a partial or complete loss of hearing, for which there is no hope of improvement from treatment. * * * The problem is to devise means by which the chasm resulting from the loss of hearing can in a measure be bridged over. This is a very definite problem, the solution of which has several well defined aspects. One of these is the acquiring of skill in lip-reading. This is perhaps of first importance, for it brings to these cases as nothing else can do, a hope of something definite for which to work. Another aspect of the problem is the social aspect. These people need help which can only be provided by bringing them together as the League is attempting to do. Then, too, there is the economic problem. A person who is losing his hearing finds increasing difficulty in earning a livelihood, and if left to himself has no very bright outlook on life. There are many things that the person with defective hearing can do.

Voluntary agencies of this specialized type may follow about the same plan after the establishment of the State Rehabilitation Service as they have already adopted. Any agency that deals with persons handicapped by various types of physical disability may find it desirable to develop its plans in such a way as to supplement the work to be established under the State Rehabilitation Act.

Voluntary organization will be required for the rehabilitation of persons not included under the provisions of the Rehabilitation Act or not taking advantage of it. The following groups are of these types:

* Year book 1919-20, p. 11

1. Physically handicapped persons over 16 years of age who do not choose to take advantage of the State plan.

2. Those who may require attention following completion of the State service to them.

3. All physically handicapped persons under 16 years of age. (Service for the physically handicapped child is in a large measure the responsibility of local boards of education.)

The effectiveness of the State plan of rehabilitation will depend upon the cooperative service of voluntary agencies in the community in supplementing and carrying through certain processes begun under State auspices. These lines of activity will include:

1. Assistance during training that may be required in excess of the $10 a week authorized in the law.

2. All financial assistance to physically handicapped persons not in training.

3. Services to shut-ins in addition to whatever industrial training the State may give.

4. Recreation for physically handicapped persons, especially summer outings.

5. Work with groups suffering with single types of disability, as for example the tuberculous or the blind, and associations of persons within such groups for mutual stimulation.

6. Facilities for occupational therapy, functional retraining and other services in connection with medical or surgical work, in addition to what may be provided by the State at the Central Hospital Group.

7. Family case work in instances in which the State rehabilitation service is not the natural leader, as, for example, where the correction of criminal tendencies in a child is more important for rehabilitation of the family than any service that may be rendered to a physically handicapped parent.

8. Organization for expeditious reference of cases of physical handicap between community agencies, including central registration in the larger cities.

9. Community surveys under supervision of State rehabilitation service.

10. Development of public opinion, including part of the program of prevention of disabling conditions.

Local chapters of the American Red Cross have assisted with community studies made as a part of the present State survey. Other local agencies have furnished valuable data and have shown an interest in adapting their work to the needs revealed by the survey. Experience with the administration of the Rehabilitation Act will indicate the extent to which such agencies are equipped to provide supplementary services such as are listed above, and whether new organizations may be needed.

Central councils of community welfare agencies, such as have been formed in some cities, afford an appropriate means through which it may be determined whether or not the community is well equipped for rendering the services indicated.

RELATION OF VARIOUS STATE DEPARTMENTS TO REHABILITATION WORK

The more important services to be rendered in connection with the program of rehabilitation through State departments other than the Department of Public Welfare are the following:

1. State Department of Labor:
   (a) Furnishing information regarding persons injured in industry;
   (b) Finding employment for physically handicapped persons who apply at free employment bureau;
   (c) Organization for safety and the prevention of industrial disease.
2. State Department of Health:
   (a) Conduct of clinics for infantile paralysis and other orthopedic defects;
   (b) Extension of medical inspection of schools, including periodic physical examinations;
   (c) Education in health and hygiene.
3. State Department of Public Instruction:
   (a) Relations with State Board for Vocational Education affecting Federal appropriation for vocational education of civilian handicapped, under the Fess-Kenyon Act.
4. State Department of Trade and Commerce:
   (a) Reporting through the State Public Utilities Commission of persons injured by railroads and the public utilities.

Within the Department of Public Welfare, the operation of a State rehabilitation service may afford helpful information bearing on the industrial training and vocational guidance of the blind and the deaf, and assistance with securing employment for persons with these types of disability. Work done under the Rehabilitation Act should tend to reduce the number of commitments to county homes. Through replies received from superintendents of county almshouse in 36 counties of Illinois, not including Cook, it is found that 9 per cent of the population of these institutions are physically handicapped persons under 60 years of age, and that of this physically handicapped group 18 per cent are considered by superintendents to be in need of prosthetic appliances or industrial training or placement. Ten inmates of the Cleveland City Infirmary were recently placed at work in industrial establishments. This circumstance led to the appointment on the staff of the infirmary of a social worker to handle such matters.

LEGISLATION NEEDED

For the effective operation of the Rehabilitation Act, new legislation or administrative orders will be needed for the following purposes as explained in previous sections of this report:

1. Providing a State fund for payment of difference in compensation between total disability and second injury resulting in total disability.
2. Providing a State rehabilitation fund into which shall be paid the minimum compensation allowance in case the injured person dies leaving no heirs.
3. Providing that prosthetic appliances of the best design shall be given when needed as a part of medical treatment under the Compensation Act.
4. Providing that maximum restoration of function of injured parts of the body shall be required in every settlement between employer and employee under the Compensation Act.
5. Prohibiting the raising of insurance rates on account of the employment of physically handicapped persons.
6. Providing research scholarships through arrangements with colleges and universities in connection with further study of the rehabilitation of physically handicapped persons and not requiring appointment under civil service.
7. Provision for reporting to the State rehalibitation service by the State Public Utilities Commission of all cases of injury known to them, similar to present provision in Rehabilitation Act for relations with State Industrial Commission.

ORGANIZATION OF THE STATE REHABILITATION SERVICE

The recommendations contained in this report contemplate the provision of the following institutional facilities:

1. A rehabilitation hospital, to be a unit in the Central Hospital Group now under construction at Chicago.
2. "Opportunity Shops" for initial industrial training and trade testing in connection with the rehabilitation hospital and also at whatever centers are provided under the law for districts throughout the State.
3. Quarters for the general staff of the rehabilitation service in connection with the rehabilitation hospital and opportunity shop, and headquarters for field workers at centers in other districts.
4. Temporary quarters for initial rehabilitation work preceding the completion of permanent quarters.

Rehabilitation of physically handicapped persons has been found in the survey to occur more easily in communities which afford the greater variety of industrial opportunities. If the districts under the rehabilitation service are laid out so as to include both agricultural and manufac-

turing industries, for example, it will facilitate the administration of the act.

The administrative personnel that will be required under this law as suggested in these recommendations includes:

1. Rehabilitation aids for visitation of disabled persons in the hospital or elsewhere, for social service in the home and for placement in industry.
2. Industrial officers for vocational guidance and instruction in opportunity shops, for surveys of industrial plants and for liaison with the State Industrial Commission and the free employment bureaus.
3. General staff officers for administrative direction and supervision, for the work of publication and research and for clerical service.

The lack of well qualified workers has been found to be an obstacle to effective service by rehabilitation bureaus that have been established elsewhere. It will probably be necessary for the success of the State program of rehabilitation in Illinois that arrangements be made for special training for rehabilitation aids.

In those states where a beginning has been made with laws similar to the Illinois act, only a small portion of the total number of handicapped persons eligible have so far been given attention. By proceeding gradually, principles of administration may be tested before they are adopted on a large scale and a staff of trained and experienced workers may be provided. It may be possible to attain a complete organization for the service contemplated in the Rehabilitation Act by the end of the second year of operation. For attaining the best results with cases handled during the period of gradual establishment of the rehabilitation service, the following order of priority of groups handled is suggested:

1. New cases reported to State Industrial Commission.
2. Physically handicapped persons discharged from hospitals.
3. Cases referred from various agencies, public and private.
4. Direct applications from physically handicapped persons.
5. Old cases known to the State Industrial Commission.
6. Cases discovered through community surveys.

BUDGET ESTIMATE

The annual cost of maintaining the rehabilitation service when fully organized, and the cost of renting and equipping temporary quarters and of purchasing artificial appliances for resale to disabled persons, are estimated as follows:

Staff salaries and traveling expenses	$117,500
Maintenance of handicapped persons during training	50,000
Research, publication and general administrative expenses	55,000
Establishment of main rehabilitation center and branches, temporary quarters	75,000
Revolving fund for purchase of artificial appliances	10,000
	$307,500

This estimated annual cost may be reduced by as much as 40 per cent in appropriating for the first year, on account of gradual establishment, and by as much as 20 per cent for the second year, the full amount being required for complete organization beginning with the third year.

For the rehabilitation hospital unit in the Central Hospital Group at Chicago, in case provision is made apart from units now under construction, for an opportunity shop for headquarters for the general rehabilitation staff in connection therewith, it is estimated that $250,000 should be appropriated for buildings and equipment. The cost of permanent quarters for rehabilitation centers in districts that may be established is not included in this estimate.

SOURCES OF REVENUE

The number of persons dying from industrial injuries covered by the State Compensation Act, and leaving no heirs, during the year 1919, was 47. Comparing this figure with the statistics of previous years it is estimated* that an average of 63 cases of this type will occur each year for the years 1921 and 1922. The minimum payment for death under the Compensation Act is $1,650. It is estimated thus that if such payment were to be made into a State rehabilitation fund an income of $103,950 might be expected each year for the next two years. Provision of this nature is made in the New York Compensation Act,† the death claim payment being $1,000, $100 of which is set aside for payment of difference between total disability rate and rate for second injury following first injury when the second accident results in total disability. Under the Industrial Rehabilitation Act of California,‡ a similar fund is created, the payment being $350 for each death claim in case no heirs are left.

Under the act of Congress providing for rehabilitation of persons disabled in industry or otherwise, commonly known as the Fess-Kenyon Act, the amount of $46,146.75 is available for vocational rehabilitation in Illinois. For each of the three years 1921-24, approximately $61,000 will be available.§ Under the terms of this Federal law it will be necessary for the revenue from the United States Government to be matched with an equal appropriation for corresponding purposes by the State and for the service to which the money is devoted to be of the nature of vocational rehabilitation, under the auspices of the State Board for Vocational Education. In accommodating the present Illinois law to the requirements of the more recently enacted Federal legislation it will be necessary to "provide for the supervision and support of the courses of vocational rehabilitation to be supported by the State Board for Vocational Education."¶ The Federal act contemplates a certain amount of adjustment to conditions in the several states, although no specific

* By the secretary of the State Industrial Commission.
† N. Y. Consolidated Laws, chap. 67, sec. 15, par. 7, amended.
‡ Calif. Laws 1919, chap. 183, sec. 1.
§ Bulletin 57, issued by the Federal Board for Vocational Education, p. 47.
¶ Sixty-sixth Congress, H. R. 4438, section 3, sub-section 4.

reference is made therein to conditions similar to those in Illinois. The application of the plan of administration suggested in this report will depend largely upon its organization under the State Department of Public Welfare. That feature of rehabilitation work which essentially must be organized under the State Board for Vocational Education, if Illinois is to take advantage of the Federal law and appropriation, appears to be the arrangement for courses of vocational rehabilitation.‖ If it should be found desirable by the General Assembly to accept the provisions of the Federal act referred to, it is suggested that the plan already adopted for administration under the Department of Public Welfare may be preserved if provision be made for the supervision of vocational training courses by the State Board for Vocational Education.

‖ See especially enumeration of matters to be reported upon, in the second paragraph of the first section of the act of Congress.

APPENDIX A-1

LAW RELATING TO THE REHABILITATION OF PHYSICALLY HANDICAPPED PERSONS

(Laws of Illinois, Fifty-first General Assembly, 1919, pp. 534-537.)

REHABILITATION OF PHYSICALLY HANDICAPPED PERSONS

§ 1. Definition.
§ 2. Duties and powers of Department of Public Welfare.
§ 3. Shall employ such persons as may be necessary.
§ 4. To promulgate rules and regulations.

AN ACT in relation to the rehabilitation of physically handicapped persons.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* It shall be the duty of the Department of Public Welfare to direct, as hereinafter provided, the rehabilitation of every physically handicapped person, sixteen (16) years of age or over, residing in the State of Illinois.

"A physical handicapped person" shall mean any person who, by reason of a physical defect or infirmity, whether congential or acquired by accident, injury or disease, is, or may be expected to be, incapacitated for remunerative occupation.

"Rehabilitation" shall mean the rendering of a person physically handicapped, fit to engage in a remunerative occupation.

"Person residing in the State of Illinois" shall mean any person who is and has been domiciled within the State for one year or more.

This act, however, shall not be construed to apply to aged or helpless persons requiring permanent custodial care, or to blind persons under the care of the State, or to deaf persons under the care of the State, or to any epileptic or feeble-minded person or to any person who may, in the judgment of the Department of Public Welfare, not be susceptible of such rehabilitation.

§ 2. The Department of Public Welfare shall have power, and it shall be its duty:

(a) To establish relations with all public and private hospitals to receive prompt and complete reports of any persons under treatment in such hospitals for any injury or disease that may permanently impair their earning capacity. The persons thus reported shall be visited by representatives of the Department of Public Welfare who shall make records of their condition and report to the Department of Public Welfare. The Department of Public Welfare shall then determine whether the person is susceptible of rehabilitation. Such persons as may be found so susceptible shall be acquainted by the Department of Public Welfare with the rehabilitation facilities offered by the State and the benefits of entering upon remunerative work at an early date. Any person who chooses to take advantage of these rehabilitation facilities shall be registered with the Department of Public Welfare, and a record shall be kept of every such person and the measures taken for his or her rehabilitation. The Department of Public Welfare shall offer to any such person counsel regarding the selection of a suitable occupation and of an appropriate course of training, and shall initiate definite plans for beginning rehabilitation as soon as the physical condition of the person permits.

(b) To arrange with the Department of Labor to receive reports of all cases of injuries received by employees in the course of employment which

may result in permanent disability. The persons thus known to be injured shall be visited, examined, registered and advised in the same manner and for the same purposes as specified in Clause (a) of this section.

(c) To receive applications of any physically handicapped persons residing within the State for advice and assistance regarding their rehabilitation. The persons thus known to be physically handicapped shall be visited, examined and advised in the same manner and for the same purposes as specified in Clause (a) of this section.

(d) To make a survey to ascertain the number and condition of physically handicapped persons within the State. The persons thus known to be physically handicapped shall be visited, examined, registered, and advised in the same manner and for the same purposes as specified in Clause (a) of this section.

(e) To arrange for such therapeutic treatment as may be necessary for the rehabilitation of any physically handicapped person registered with the Department of Public Welfare.

(f) To procure and furnish at cost to physically handicapped persons registered with the Department of Public Welfare, artificial limbs and other orthopedic and prosthetic appliances, to be paid for in easy installments.

(g) To establish, equip, maintain and operate in one of the large cities in the State, a School of Rehabilitation, and to establish, equip, maintain and operate branches of the school at such other places as may in the judgment of the Department of Public Welfare be necessary. There shall be provided at the school and its branches courses of training in selected occupation for physically handicapped persons registered with the Department of Public Welfare whose physical condition may, in the judgment of the Department of Public Welfare, require special courses of training to render them fit to engage in remunerative employment and who are assigned by the Department of Public Welfare to the school or to any of its branches for the purpose of such special training.

The Department of Public Welfare shall make the necessary rules for the proper conduct and management of the school and its branches; shall have control and care of the building and grounds used by the State for the school and its branches, and shall prescribe the course and methods of training to be given at the school and its branches.

(h) To arrange with the State and local school authorities for training courses in the public schools of the State in selected occupations for physically handicapped persons registered with the Department of Public Welfare.

(i) To arrange with any educational institution for training courses in selected occupations for physically handicapped persons registered with the Department of Public Welfare.

(j) To arrange with any public or private organization or commercial, industrial or agricultural establishment for training courses in selected occupations for physically handicapped persons registered with the Department of Public Welfare.

(k) To provide for the maintenance, during the prescribed period of training, of physically handicapped persons registered with the Department of Public Welfare: *Provided*, that the cost of such maintenance shall not exceed ten dollars ($10.00) per week for twenty weeks, unless an extension of time is granted by the Department of Public Welfare.

(l) To arrange for social service to and for the visiting of physically handicapped persons registered with the Department of Public Welfare and their families in their homes during the period of treatment and training and after its completion, and to give advice regarding any matter that may effect rehabilitation.

(m) To cooperate with the Department of Labor in the placement in remunerative employment of physically handicapped persons registered with the Department of Public Welfare.

(n) To conduct investigations and surveys of the several industries located in the State to ascertain the occupations within each industry in which physically handicapped persons can enter upon remunerative employment under favorable conditions and work with normal effectiveness and

to determine what practicable changes and adjustments in industrial operations and practices may facilitate such employment.

(o) To make such studies and reports as may be helpful for the operation of this act.

(p) To keep the people of the State informed regarding the operation of this act.

(q) To cooperate with any department of the Federal or State government or with any private agency in the operation of this act.

(r) *Provided, however*, that no person shall be subject to this act or to any of its provisions, and shall not be examined, registered, or advised unless such person first elects to take advantage of the privileges afforded by this act and to come under its terms and conditions.

§ 3. The Department of Public Welfare, subject to the provisions of civil service law which is now or which hereafter may be in force in this State, shall employ such persons as may be necessary for the enforcement of the provisions of this act, and shall prescribe their duties, compensation and terms of employment.

§ 4. The Department of Public Welfare shall promulgate reasonable rules and regulations relating to the enforcement of the provisions of this act.

APPROVED June 28, 1919.

APPENDIX A-2

ORGANIZATION AND PROCEDURE OF THE PRESENT SURVEY

Beginning with the appointment of William T. Cross, of Chicago, as survey officer on February 15, 1920, the survey has been organized with the following staff:

TABLE I—STAFF OF THE SURVEY

Name.	Type of Service Rendered.	Period of Service.
William T. Cross	Organization and direction of the survey	Feb. 15 to Jan 10
Margaret W. Wagner	Assistant with case studies and agency surveys	Aug. 18 to Jan. 10
Dr. John D. Ellis	Part time advisory service relating to medical problems	Aug. 15 to Oct. 30
Charles M. Larcomb	Assistant with industrial studies and with summary of survey results	June 22 to Oct. 15 Nov. 15 to Dec. 15
Helen Perry	Field worker, Chicago block study	Nov. 22 to Dec. 15
E. LeRoy Walters	Assistant with industrial studies	June 22 to Sept. 1
H. D. Byrne	Student investigator, study of placement training	June 1 to Dec. 15
Mrs. Lulu C. Starkey	Secretarial and clerical service	March 1 to Jan. 10
Della Sideman	Stenographer	Aug. 26 to Dec. 15

In addition to the above, special service in connection with community studies has been rendered by Prof. E. W. Burgess of the University of Chicago, and a number of students under his supervision; by the Macon County Chapter American Red Cross, Mrs. Inez J. Bender, executive secretary; by the Board of Education of Springfield and the Sangamon County Chapter American Red Cross; and by the LaSalle County Chapter, American Red Cross, Miss Effie E. Doan, executive secretary, in connection with a study of the Tri-Cities (LaSalle, Peru and Oglesby). The Central Division of the American Red Cross, through the services of Mr. Walter E. Davidson, associate manager, has

encouraged its local chapters in Illinois to undertake studies of the physically handicapped in connection with the State survey.

Generous assistance has been given by a number of leading physicians and surgeons, teachers, social workers and executives of community agencies. Dr. Frank Billings, formerly chief of the Division of Physical Reconstruction of the United States Army and Dr. Harry E. Mock, of the staff of the same division, have given extensive consideration to the survey during its progress and have contributed to the present statement of results.

The State Department of Labor has generously donated office space and facilities at the Chicago Free Employment Bureau, upon recommendation of the superintendent of the bureau, Mr. Charles J. Boyd. The State Industrial Commission has furnished information concerning persons injured at work and the operation of the Compensation Act. Other State departments, through related divisions, have facilitated the study by furnishing information.

In dealing with medical and social agencies and various public departments, both State and local, special effort has been made to develop relationships that will be advantageous when administration of the Rehabilitation Act is undertaken.

Numerous national and state authorities outside Illinois have assisted with information. Some of the more significant developments outside Illinois have been observed at first hand by the survey officer.

APPENDIX A-3

NOMENCLATURE IN THE DIAGNOSIS OF PHYSICAL DISABILITIES

In order to secure reports of physical disabilities from medical institutions, physicians and welfare agencies, which will be uniform and mutually understood, a schedule of the more important types of disability has been prepared. This is based on the schedule, adopted recently by a committee representing the United States Bureau of Census.*

It has been submitted for criticism, to a number of leading physicians of Chicago.

The grouping and numbering as shown here correspond to the original list. A more extensive schedule than the one reproduced here has been prepared also. It is suggested that in reports of hospitals and other agencies, under the Rehabilitation Act this nomenclature be used:

II. Tuberculosis, pulmonary. (Arrested.)
Tuberculosis, all other. (What parts?)
III. Veneral Disease:
Syphilis, all of what part or system?

* Standard Nomenclature of Diseases and Pathological Conditions, Injuries and Poisonings, Bureau of Census, 1919.

IV. General Diseases:
- Tumors, of what part?
- Cretinism.
- Goiter, simple.
- Exophthalmic goiter.
- Diabetes.
- Poisoning, chronic—due to what?

V. and VI. Nervous and Mental Diseases:
- Speech, defective.
- Neurasthenia.
- Multiple sclerosis.
- Epilepsy.
- Jacksonian epilepsy.
- Hysteria.
- Tubes dorsalis.
- Other diseases of nervous system.

VII. Diseases of the Eye:
- Blindness.
- Defective vision, one or both eyes?

VIII. Diseases of the Ear:
- Defective hearing, one or both ears?
- Deafness.

IX. Diseases of the Nose.

X. Diseases of the Throat.

XI. Circulatory System:
- "Heart disease."
- "Weak heart."
- Aneurysm, where?
- Hemorrhoids.
- Varicose veins.
- Varicocele.

XII. Respiratory System:
- Asthma.
- Bronchitis, chronic. (Cause.)

XIII. Digestive System:
- Hernia. (Location.) "Threatened and incipient hernia."
- Inguinal rings, enlargement of.
- Fistual in ano.
- Other diseases of digestive system.

XIV. Genito-urinary System:
- Nephritis, chronic.
- "Brights disease."
- "Kidney disease."
- Nephroptosis—"floating kidney."
- Hydrocele.

XV. Diseases of the Skin:
- Large disfiguring scar of face.
- Disfiguring or offensive skin disease.

XVI. Bones and Organs of Locomotion:
- Osteitis deformans—"deforming rheumatism." (What part affected?)
- Ankylosis, of joint—"stiff joint."
- Bursitis.
- Tenosynovitis.
- Relaxed ligaments of joint.
- Joint, resection of.
- Chronic dislocation.
- Bunion.
- Hammertoe.
- Ingrowing nail.
- Loss of part of foot.
- Deformities of foot.

Depressed fracture of skull.
Deformities of hand.
Loss of one or more fingers. (Which ones? Which hand? Man right handed?)
Loss of part or whole of lower extremity.
Paralysis, part or whole lower extremity.
Scar of head or neck.
Deformity of spine.
Hernia of muscle.
Other diseases of bones and organs of locomotion.
Healed fractures with deformity interfering with function of part.

XVII. Malformation and Ill-Defined Diseases:
Defective physical development.
Overweight.
Underweight.
Malnutrition.
Crytorchidism.
Fistula, post operative.
Fistula, other. (Where?)
Ill-defined diseases.

APPENDIX A-4

PLAN OF A CENTRAL REGISTRATION OF CASES OF PHYSICAL HANDICAP FOR A LARGE CITY

Every agency and institution dealing with physically handicapped persons would be asked to register its cases with this bureau. Any agency making inquiry about a specific person would be given the information recorded, including the names of whatever agencies had previously handled the case. The request for establishing the registry for the handicapped may well come from a meeting of representatives of the more important agencies concerned with registration, or from the Council of Social Agencies, if such a central association exists in the city.

The immediate advantage of this bureau would be the practical service it would render as a clearing house for community agencies dealing with the physically handicapped. At the same time through the efforts of various agencies joining in the plan, a common understanding would be reached regarding the classes of disabled persons being handled, the particular needs served by each agency, and parts of the field for which no provision may have been made.

The present State survey of the physically handicapped, and local studies made in connection therewith, would be used as a stimulus to all agencies to register their cases.

A central registry for any large city may be the barometer of the physically handicapped. By this means may be learned the character and volume of work being done for the handicapped and more essential facts about all cases now under treatment.

Such registry may be organized effectively under the staff of the Social Service Registration Bureau, if any such central clearing house exists in the city. The cards may be kept separate, and the management supervised by a specially appointed committee. The cards at the Regis-

tration Bureau would indicate automatically the number of handicapped persons known to the various agencies, their types of disability, and certain other items such as are included on the following form for a card measuring 3 by 5 inches:

Surname	Man	Born	Woman	Born
Children	Born	Born		Born
[1]	Eng.[2]	Diagnosis	By	
Residence	In School[3]	At Work	Date	Registering Agencies

[1] Handicapped person to be listed on fourth line.
[2] "Eng." signifies whether handicapped person reads and writes English.
[3] Each registering agency indicates whether, at the time, the handicapped person is in school or at work.

Anticipating that the number of cases on record at the end of the first year would be 10,000, the cost of establishing a registry of the physically handicapped in connection with an existing Social Service Registration Bureau, and operating it the first year is estimated to be between $600 and $1,000. For the second and third years, it is estimated that the saving (over the first year) in equipment, materials and service, would be offset by increase in volume of business.

APPENDIX B-1

COMMUNITY CENSUSES OF CHICAGO, DECATUR AND OTHER CITIES

In school censuses made during the early summer of 1920, physically handicapped persons were listed as shown on the first four lines of the following table. In each instance the local school board received a schedule of disabilities to be included, and suggestions to census enumerators concerning methods of finding physically handicapped persons. The types of disability considered are given on page 443 of the present report. At Springfield and Decatur, the enumerators were teachers, and before making the canvass met with the State survey officer and an orthopedic surgeon. In these two cities, adults were included in the returns.

For Chicago, a series of districts which are considered to have a "working class population" were selected and each house visited by a student in the sociology department of the University of Chicago.

At both Chicago and Decatur persons listed as physically disabled in the house-to-house canvass were later visited by trained workers and more complete information secured.

TABLE I—PROPORTION OF PHYSICAL DISABILITIES IN POPULATION AS SHOWN BY FIRST HOUSE-TO-HOUSE CANVAS.

City.	Population* of city or districts.	Age group included in census.	Number of disabled persons.	Per cent.
Springfield	59,183	all ages	902	1.6
Decatur	43,818	all ages	893	2.0
Danville	*35,000	all under 21	96	.3
Taylorville	5,606	all under 21	33	.6
Chicago	11,172	all ages	568	5.1

* Springfield, Decatur, Danville, 1920 United States census; Taylorville, estimate by Superintendent of schools; Chicago special census from house-to-house visitation.

The relation of findings from the initial canvass to the results of the second visitation is shown for Chicago and Decatur by the following table:

TABLE II—REHABILITATION PROBLEMS REPRESENTED AMONG CASES ORIGINALLY NOTED AS DISABLED.

	Chicago.		Decatur.	
	Number.	Per cent of total population.	Number.	Per cent of total population.
Population of district or city	11,172		43,818	
Number listed as physical disabled in first canvass	568		893	
Group A. No schedules made—				
Groups not revisited, including cases discarded as indicating minor disabilities—				
Soldiers	*16		*8	
Aged	17			
Others	108		318	
Important disability, but second visitation not made	*9		*49	
Not located on second visitation	*85			
Total	235		375	
Group B. Schedule cases, not counted as physically handicapped—				
Old age	2		20	
In institutions	11		4	
Epileptic or mentally defective	15		51	
Died since initial canvass	3			
Completely recovered since initial visit	82		87	
Total	113		162	
Group C. Physically handicapped persons—				
Adults, disability serious, but does not interfere with present work	†59	.46	119	.24
Need rehabilitation—				
Adults	101	.90	80	.18
Children	60	.53	157	.36
Total	220		356	
Handicap cases estimated for starred items	52	.47	41	.37
Proportion of physically handicapped persons and others seriously disabled		2.36		1.15

† Includes 3 children.

The schedules used on second visitation, and filled out more completely for persons in Group C as shown in the foregoing table, were as follows, for adults and for children, respectively:

Form 1
For persons over
15 years of age

STATE OF ILLINOIS DEPARTMENT OF PUBLIC WELFARE

ENUMERATION CARD

SURVEY OF THE PHYSICALLY HANDICAPPED

Please write plainly
with pen

5 R P H

Name	City	Street and number	By whom filled out Official connection

Sex	Age (Years)	Color or race	Born what country	How long in U. S. (Years)	How long in Illinois (Years)	Speak English	Last removal from (Town and State)	Date form filled out

HANDICAP AND ECONOMIC CONDITION
(USE KEY LIST OF HANDICAPS, FORM 2)

Part of body affected	Amputation?	Nature of injury	Injured at work?	Congenital defect	Disease or condition	Condition (check) static improving growing worse

Now receiving medical treatment?	Date became handicapped	At age of (years)	Use of artificial limbs, appliances, etc.	Education (check) Common school ----------Grade High school College	Married or single (check)	Number in household

Circumstances of becoming handicapped

Economic condition (check) Dependent Partially self-supporting Self-supporting Supporting others	Compensation for industrial injury Total received to date	Compensation ceased when	Total in prospect	To cover period of	Family income per week from Insurance	Charity
	$----------	----------	$----------	---------Mo.	$----------	$----------

List every person who is handicapped "by reason of a physical defect or infirmity, whether congenital or acquired by accident, injury or disease."

EMPLOYMENT AND INDUSTRIAL ADJUSTMENT

PRESENT CIRCUMSTANCES

Description of occupation (Be specific)

1. General class of industry

2. Exact job, or operations performed

Posture at work	Number of years at this occupation	Steady or casual (check)	Average earnings per week
			$----------

Name and address of present employer

Check if same establishment where handicap occurred	Check if never has worked	Managing own business

PREVIOUS TO HANDICAP

Description of occupation (Be specific)

1. General class of industry

2. Exact job or operations performed

Number of years at this occupation	Steady or casual (check)	Average earnings per week
		$----------

Name and address of employer at time of handicap

One other employer and address

COMMENT

Return this enumeration form, properly filled out, to William T. Cross, Survey Officer, 116 N. Dearborn St., Chicago.

Form 5
For children under 16 years
(35470—5m-6-20)

STATE OF ILLINOIS, DEPARTMENT OF PUBLIC WELFARE

CHILD STUDY CARD

SURVEY OF THE PHYSICALLY HANDICAPPED

Please write plainly with pen

Child Surname	Given name	City	Street and number	By whom filled out
Name of parent				Official connection

Sex / Age (Years)	Color or race	Born what country	How long in U. S. (Years)	How long in Illinois (Years)	Speak English	Last removal from (Town and State)	Date form filled out
	Mother						
	Father						

SCHOOL AND HOME

In Elementary School ____ grade High school ____ year	School attending	Distance	Walk to school	Means of transportation

Household	Employed	Number of children in school	Economic condition of family	Parental attitude toward treatment for child	Assistance being received
Father			Good		
Mother			Fair		
Children (No.)			Poor		
Others (No.)					

Assistance needed by family (To secure apparatus, transportation, vocational education, etc.;)

Lack of ability or compensatory ability developed in	Eating	Dressing	Cleanliness	Locomotion	Vocation

List every child who "by reason of a physical defect or infirmity, whether congenital or acquired by accident, injury or disease, is or may be expected to be incapacitated for remunerative occupation."

HANDICAP AND ECONOMIC CONDITION

(USE KEY LIST OF HANDICAPS, FORM 2)

Part of body affected	Amputation?	Nature of injury	Injured at work?	Congenital defect	Disease or condition	Condition (check) static improving growing worse

Date became handicapped	At age of (Years)	Use of artificial limbs, appliances, etc.	Now receiving medical treatment	Name and address of family physician

Circumstances of becoming handicapped	History of tuberculosis in family

Former diagnosis	When	Physician or hospital	Former or present treatment (Underscore which)

Other hospitals in which child has been	When	For what cause	Attending physician or surgeon

Other physical defects

Treatment prescribed for physical handicap

By Dr.

Return this form, properly filled out, to William T. Cross, Survey Officer, 116 N. Dearborn St., Chicago.

DESCRIPTION OF DECATUR AND CHICAGO AREAS

The population of Decatur increased 40.7 per cent during the decade 1910-20. While the city is in an agricultural section, it has 82 factories* employing approximately 11,000 people, 1,000 of whom are women. In Decatur are located the Wabash Railroad shops, employing about 2,700 men. Two coal mines are being operated there. The place is noted also for corn milling and for the manufacture of brass plumbing and soda fountains.

The Chicago area consists of blocks, located in all parts of the city, which had been studied two years previously by the State Health Insurance Commission. Concerning their selection it is said in the report of the commission (p. 180):

> Instead of the geographical block the social block was made the unit of investigation. By social block is meant the two sides of a residential street. Social and civic workers recognize that the social block represents a natural social group and that the alley is a line of separation rather than of communication between the families.
>
> The blocks studied were carefully chosen in order to be representative of Chicago's wage-earning population. The investigations made by the School of Civics and Philanthropy into housing conditions in Chicago were utilized in the selection of blocks with known differences in physical structure, racial composition and economic condition. So far as possible a normal distribution of the different immigrant and racial groups in Chicago are provided for. An attempt was also made to secure adequate representation of all degrees of economic condition from casual laborer to the skilled workman. The location of blocks with reference to dispensaries, hospitals and other welfare agencies was given special attention, and their geographical position in relation to the chief industries of the city was taken into account.
>
> A wage-earning family is defined in this study (see p. 184) as being one in which the normal or the chief breadwinner is working for an employer for a stipulated wage paid most frequently by the week, but occasionally by the day or the month.

While the Decatur results may be considered to be representative of the middle-size cities of Illinois, the Chicago areas cannot be taken as typical of the entire city or of metropolitan centers. The result is probably high in proportion of physically handicapped persons to population, especially on account of the number of persons who are employed and are exposed to industrial accidents. This very circumstance, however, adds to the importance of the study.

ANALYSIS OF RESULTS

The types of disability represented by these cases are an important feature of the study, although an analysis cannot be given in this summary.

Classification was made into the two groups, "Need Rehabilitation," and "Handicap Does Not Interfere with Present Employment," on the following basis:

The "Need Rehabilitation" group consists of men who in almost every case need medical attention. They are idle, holding temporary

* Data on industries taken from recent community study made by the local chapter of the American Red Cross.

or makeshift jobs, have work unsuited to their disabilities, or are young men with fair education who, evidently for lack of better opportunities, have drifted into lower grade occupations. In the majority of cases, however, medical assistance will be necessary before any progress can be made toward an economic readjustment. For children, the same classification was made, with the interpretation that "Need Rehabilitation" indicates need of attention from the medical, educational or social service standpoint.

The second group, "Disability Does Not Interfere with Present Employment," are men who have had adequate medical attention, and are highly skilled, semi-skilled or holding jobs suited to their education, experience and handicap. A man 65 years old, with partial paralysis, is allowed to remain in the second group, but a boy of 22 with the same disability, doing the same work, calls for rehabilitation.

The classification then is based on:

1. Need of medical treatment.
2. Need of occupation.
3. Need of change of occupation, because of
   - (a) Age.
   - (b) Disability.
   - (c) Capability.

THE MORE SERIOUSLY DISABLED

Those considered to be seriously disabled and of special interest in connection with the Rehabilitation Act are here grouped for study. The figures used correspond to the three items in Group C of table 2, preceding. Age and sex, for the group, are as follows:

TABLE III—SEX AND PRESENT AGES OF THE MORE SERIOUSLY DISABLED PERSONS, DECATUR AND SELECTED AREAS IN CHICAGO.

	Decatur.		Chicago.	
	Number.	Per cent of those stated.	Number.	Per cent of t ose stated.
Children*—				
0– 2 years	2	1.3	6	10.0
3– 5 years	15	9.6	11	18.3
6– 9 years	55	35.3	23	38.4
10–15 years	84	53.8	20	33.3
Not stated	1			
Total	157	100.0	60	100.0
Men—				
16–19 years	14	15.2	9	10.6
20–29 years	17	18.5	12	14.1
30–39 years	14	15.2	32	25.9
40–49 years	20	21.7	17	20.0
50–59 years	15	16.3	17	20.0
60 and over	12	13.1	8	9.4
Total	92	100.0	85	100.0

* For Decatur the proportion of male children is 55 per cent, and for Chicago 54 per cent.

TABLE III—Concluded.

	Decatur.		Chicago.	
	Number.	Per cent of those stated.	Number.	Per cent of those stated.
Women—				
16–19 years	14	13.1	9	13.0
20–29 years	16	15.0	9	13.0
30–39 years	27	25.2	18	26.1
40–49 years	24	22.4	10	14.5
50–59 years	14	13.1	15	21.8
60 and over	12	11.2	8	11.6
Not stated			1	
Total	107	100.0	70	100.0
Grand total	356		215	

The relations of groups in the foregoing table are shown more clearly as follows:

	Decatur.	Chicago.
Children	157—44 per cent	60—28 per cent
Men	92—26 per cent	85—40 per cent
Women	107—30 per cent	70—32 per cent

The comparatively large proportion of children in the Decatur group may be due partly to better medical facilities and organization in Chicago. The greater proportion of men in Chicago may be due largely to the greater number of industrial accidents, as shown in a later table.

In the preceding table and the one that follows, it is especially necessary to keep in mind the fact that the cases under study are selected as having an important relation to the problem of rehabilitation. Reconstruction measures will be directed chiefly toward the treatment of disabilities at the time of their occurrence. Table 4 shows the age of occurrence of disabilities:

TABLE IV—AGE OF OCCURRENCE OF DISABILITY, OF SERIOUSLY DISABLED PERSONS.

Age of occurrence.	Decatur.		Chicago.	
	Number.	Per cent of those stated.	Number.	Per cent of those stated.
Children—				
At birth	16	17.6	21	39.6
0– 2 years	21	23.1	14	26.4
3– 5 years	26	28.5	3	5.7
6– 9 years	19	20.9	8	15.1
10–15 years	9	9.9	7	13 2
Not stated	66		7	
Total	157	100.0	60	100.0

TABLE IV—Concluded.

Age of occurrence.	Decatur.		Chicago.	
	Number.	Per cent of those stated.	Number.	Per cent of those stated.
Men—				
At birth	11	12.5		
Under 10 years	24	27.3	5	6.1
10–15 years	11	12.5	7	8.5
16–19 years	3	3.4	8	9.7
20–29 years	9	10.2	14	17.1
30–39 years	10	11.4	15	18.3
40–49 years	7	8.0	18	22.0
50 and over	13	14.7	15	18.3
Not stated	4		3	
Total	92	100.0	85	100.0
Women—				
At birth	11	11.6	2	3 0
Under 10 years	19	20.0	6	9.0
10–15 years	9	9.5	2	3.0
16–19 years	6	6.3	5	7.4
20–29 years	15	15.8	12	17.9
30–39 years	17	17.9	18	26.9
40–49 years	10	10.5	13	19.4
50 and over	8	8.4	9	13.4
Not stated	12		3	
Total	107	100.0	70	100.0
Grand total	356		215	

From this analysis it appears that 70 per cent of the handicapped children became disabled before reaching school age. Forty per cent of the women became disabled in the period of 20-39 years.

STUDY OF DISABLED MEN

For the men, the proportions are as follows:

	Decatur.	Chicago.
Number of cases	88	82
Under 16 years	52.3 per cent	14.6 per cent
16–29 years	13.6 per cent	26.8 per cent
30 and over	34.1 per cent	58.6 per cent

A striking number in Decatur were disabled before reaching 16. This may indicate the result of neglect of adjustment in early life. The small proportion occurring in the period 16-29 years is due in part to the comparative infrequency of industrial accidents. The Chicago figures show, in comparison, a high percentage of disabilities occurring above 30 years of age—a period of exposure to industrial accidents and of greater difficulty in readjustment following illness or injury. The relations, as to injuries and Americanization, are as follows:

	Decatur.	Chicago.
Industrial accidents	16 per cent	38 per cent
American born	97 per cent	48 per cent

The average length of residence in the United States, for the Chicago group, is 21 years.

By comparing the men in these two cities who "Need Rehabilitation" and those who seem to have made satisfactory adjustments, light is

thrown on the conditions that affect rehabilitation. The more important of these circumstances appear to be as follows:

TABLE V—COMPARISON OF SERIOUSLY DISABLED MEN WHO "NEED REHABILITATION" AND THOSE WHO DO NOT.

	"Need rehabilitation."	Disability does not interfere with present employment.
Number	Decatur 32 Chicago 48	Decatur 59 Chicago 37
Occupation and change at time of becoming disabled.	Decatur— Chiefly unskilled before becoming disabled. Tendency to change to casual work, or not re-employed. 50 per cent not now employed. Chicago— 50 per cent not now employed.	Decatur— Same work or better position. 56 per cent now at skilled work.
Seriousness of disability	Does not appear to affect situation in either Decatur or Chicago.	
Went to high school	Decatur 16 per cent Chicago 5 per cent	Decatur 15 per cent Chicago none
Finished 8th grade	Decatur 50 per cent Chicago 14 per cent	Decatur 67 per cent Chicago 59 per cent
Average number in family	Decatur 5 per cent Chicago 5 per cent	Decatur 4 per cent Chicago 5 per cent
Proportion injured at work	Decatur 11 per cent Chicago 47 per cent	Decatur 2 per cent Chicago 24 per cent
Proportion disabled under 16 years of age	Decatur 48 per cent Chicago 6 per cent	Decatur 54 per cent Chicago 27 per cent
Proportion disabled 16-19 years of age	Decatur 3 per cent Chicago 13 per cent	Decatur 4 per cent Chicago 6 per cent

While the specific occupations in which the more successful men are engaged in some instances suggest lines for others to follow, they vary greatly and apparently are not the cause of success.

WOMEN AND CHILDREN

The chief occupation of the disabled women is that of the housewife. The gainfully employed women who do not "Need Rehabilitation" are more frequently doing skilled work than are the others.

The school attendance of children in need of some rehabilitation service is shown as follows:

TABLE VI—SCHOOL ATTENDANCE, 217 CHILDREN UNDER 16 YEARS OF AGE "NEEDING REHABILITATION."

	Decatur		Chicago.	
	Number.	Per cent of those stated.	Number.	Per cent of those stated.
Below school age	14	8.9	16	27.6
Of school age—				
In regular school	119	75.8	24	41.4
Special schools or class, or private tutor	1	.6	5	8.6
Not in school	23	14.7	13	22.4
Not stated			2	
Total	157	100.0	60	100.0

For the same group of children, the investigator's indication of economic condition of the family is here summarized:

TABLE VII—ECONOMIC CONDITION OF FAMILIES OF 217 PHYSICALLY HANDICAPPED CHILDREN "NEEDING REHABILITATION."

	Decatur.	Chicago.	Total.	Per cent of those stated.
Good	53	24	77	39.5 per cent
Fair	66	20	86	44.1 per cent
Poor	21	11	32	16.4 per cent
Not stated	17	5	22	
Total	157	60	217	100.0 per cent

FURTHER ANALYSIS

The value of the information contained in the case records of the surveys of Decatur and of Chicago blocks is much greater than is shown in the summaries here given. It would be especially profitable to study the relations of types of disability to remunerative occupation and to make a more intensive examination of the rehabilitation problems represented.

APPENDIX B-2

TWENTY-FIVE INJURED COAL MINERS

Injured coal miners present perhaps greater problems of rehabilitation than the victims of any other type of industrial accident in Illinois. During the year 1919, 28 per cent of the more serious injuries covered by the Compensation Act occurred in the coal mining business. (See Appendix *F-5* to this report.) This was nearly twice as many as occurred in the industry nearest in number of serious accidents, namely, the metal trades. Forty-one per cent of all total disabilities during 1919 occurred in coal mining.

The problem is as important in the degree of occupational disability that results, and the difficulty of reestablishment, as it is in the number of persons injured. The coal miner usually has spent most of his working life under ground, and he has had few, if any, other occupational associations. Many coal miners do not read and write English.

Mining communities ordinarily afford little variety of occupations, or chance for learning new trades. They do not have welfare agencies that are developed and differentiated in types of service rendered. Even in the larger cities in mining districts, the injured coal miner presents a problem that is recognized as baffling by agencies engaged in family rehabilitation.

How serious and extensive is this problem is indicated somewhat by the following summary of twenty-five cases of seriously injured coal

miners in an Illinois mining village of 1,872 population (1910 census). These records were secured by Dr. John S. Coulter,* an industrial surgeon of Chicago. They do not represent all the seriously injured miners in this community, nor do they show the extent of physical handicap when the effects of other accidents and of disease are considered; yet these twenty-five cases constitute 1.3 per cent of the population of the village.

The problems of rehabilitation represented in each of these cases is illustrated by the following description. Other illustrations of the problem of the injured coal miner are given near the beginning of the report:

> John Samon was hurt while working in the mines in 1919. He was told he had a sprained back and tried to return to work, but was unable to. A later examination showed that he had four fractures in his spine. He was awarded compensation on the basis of permanent total disability. The case appealed and in consequence Samon has received no compensation for 6 months. He is about 40 years old, intelligent, and had worked for this company for four years. He can do any light work that does not entail heavy lifting. He receives a small income, $100 a month from his position as "town policeman," which in this instance is not a dependable job, nor does it afford him a good outlet for future employment.

The condition of the 25 men about whom information has been secured is summarized as follows:

Ages.—From 25 to 61 years, average 40. Seventeen are 40 or less.

Disability.—Twenty-two are spinal fractures or sprains.

Time since Injury.—Within the last year in 21 cases.

Present Occupation.—No occupation in 19 cases. The remaining six are as follows:

Selling soft drinks.
Selling claims.
Policeman.
Loader in mine.
Mine committeeman.
Light work in mine.

Number of Years Worked for Present Mining Company.—In 23 instances, for one year or longer; average, 3 years.

Job in the Mine.—Per week: For 20 men, average $12.81; the remaining five being as follows:

One, receiving no income.
One has just received a cash compensation settlement of $2,000.
Two, working in mine, at standard scale.
One, temporarily $9 a day as mine committeeman.

Source of Present Income.—Compensation payments in 21 cases; 3 paid wages by mining company, and the policeman paid by the town.

* See also "Industrial Clinics" by Drs. Paul B. Magnuson and John S. Coulter, J. B. Lippincott & Company, 1920.

Number in Family.—Six single men, 6 with only 2 in family, the remaining thirteen men averaging 4.4 members in the family.

Other Occupations Known.—"None" in 23 cases; one of the remaining two understands farming and the other clerical work.

Read and Write English.—Yes, 11; no, 14.

APPENDIX C-2

PHYSICALLY HANDICAPPED PERSONS KNOWN TO SOCIAL AGENCIES OF CHICAGO

(Preliminary report.)

Inquiries have been sent recently to social agencies of Chicago* that were most likely to be acquainted with physically handicapped persons. No hospitals, dispensaries, clinics, public departments or institutions were included. The types of cases to be considered were explained as in other inquiries covered by this report. The returns received are summarized as follows:

Number of agencies to whom inquiry was sent..... 220
Number of replies received..... 157

Agencies from which replies were received indicating they were in touch with physically handicapped persons were asked to furnish individual case record forms. One of the three forms that were used for this purpose is reproduced here:

CASE RECORD FOR SURVEY OF PHYSICALLY HANDICAPPED. STATE DEPARTMENT OF PUBLIC WELFARE, 116 N. DEARBORN STREET, CHICAGO.

Confidential information — Form 10.

Agency	By whom filled out		
Handicapped person	Sex	Race or color	Single
Address	Age	Born where	Married
Diagnosis of Disability	How does disability interfere with work		
Cause of Disability	Date became disabled	Any artificial applicances used	
Present Occupation	Wages	Occupation before handicap	Wages
School grade reached	Speak English	Read English	Write English

Service rendered by Agency to Handicapped Person

* As listed in the Social Service Directory, published by Department of Public Welfare of Chicago, 1918 edition.

Form 10x

Living with whom:	Dependent	Condition (check)
Does what kind of work:	Habitual posture	Static Improving Growing worse

Bedridden	Wheel-chair case	Hours per day able to work	Average weekly earning

If work is irregular state reason why:

Able to go out	Means of Locomotion	Assisted	Unassisted

Has what form of recreation:	Attitude toward home work:

History of case:

The number of physically handicapped persons reported by various agencies is shown by the following table: (Table I.)

There is no duplication between the two columns of figures in the table; hence the results of the inquiry may be stated as follows:

1. Number of agencies reporting 157
   Have no physically handicapped clients 99
   Have physically handicapped clients 58
   Number of clients 5,429
2. Number of agencies furnishing individual record cards 26
   Number of individuals thus reported 1,876

While the individual cards have not been cleared to determine the number of cases listed by more than one agency, it is probable that duplications would constitute not more than one per cent of the total number of card records received, 1,876.

The types of disability included among these 1,876 persons, and their ages, are shown in Table II on pages 508-509.

TABLE I—NUMBER OF PHYSICALLY HANDICAPPED PERSONS KNOWN TO COMMUNITY AGENCIES OF CHICAGO.

(Preliminary Report)

Type of agency.	Name of agency.	Number handicapped reported.	Individual records received.
Specialized agencies for physically handicapped	Vocational Committee for Shut-Ins (39 not shut-ins)	----------	201
	South Side Crippled Children's Aid	6	----------
	McCowen Oral School Home for Deaf Children	24	----------
	Ephpheta Social Center for the Deaf	300	----------
	Chicago League for the Hard of Hearing	75	----------
	Chicago Lighthouse	200	----------
	Service League for the Handicapped (Approximately)	500	----------
	1 Specliaized Agency not heard from	----------	----------
Home nursing	Visiting Nurse Association (Infantile and spastic paralysis cases)	----------	562
	Visiting Nurse Association	----------	190
	Infant Welfare Society	----------	39
Chicago schools	Special schools and classes	407	567

TABLE I—Concluded.

Type of agency.	Name of agency.	Number handicapped reported.	Individual records received.
Training schools	St. Charles School for Boys		6
	Lisle Manual Training School for Boys and Girls		2
	Allendale Farm		1
	Park Ridge School for Girls		2
	Kettler Training Schools for Boys	2	
	Catherine Casper Industrial School for Girls	3	
	Illinois Technical School for Colored Girls	2	
	2 Training schools not heard from		
Child welfare	Jewish Home Finding Society	92	
	Juvenile Protective Association	3	
	Infant Welfare Society		39
	1 Child Welfare not heard from		
	10 Child Welfare report no physically handicapped		
Rest and Outing Associations	5 Rest and Outing Associations not heard from		
	6 Rest and Outing Associations report no physically handicapped		
Family welfare agencies	Jewish Aid	231	
	Society of St. Vincent DePaul	Not stated	
	United Charities	687	
	9 Family Welfare Agencies not heard from		
	4 Family Welfare Agencies report no physically handicapped		
Homes	Home for Destitute Crippled Children		86
	County Home for Convalescent Children		71
	St. Joseph's Home for Working Girls		17
	Illinois Children's Home and Aid Society		15
	Chicago Foundling's Home		1
	Central Baptist Children's Home		1
	Norwegian Lutheran Children's Home		1
	Eleanor Junior Club		1
	German Evangelical Orphanage and Old People's Home		4
	Working Boy's Home of the Mission of Our Lady of Mercy	3	
	St. Mary's Home for Children	18	
	Oak Forest Infirmary	Not stated	
	Methodist Deaconess Orphanage	8	
	Men's Industrial Home	40	
	Mercy Home	1	
	Chicago Home for Convalescent Women and Children	2	
	Baron Hirsch Women's Club Rest Cottage	10	
	15 Homes not heard from		
	29 Homes report no physically handicapped		
Settlements and Day Nurseries	Eli Bates House		13
	Burnside Settlement		6
	Emerson Settlement		10
	Olivet Institute		15
	Chicago Commons	33	7
	Little Wanderer Day Nursery	2	
	Christopher House Day Nursery	2	
	Henry Booth House	14	
	Guardian Angel Center	1	
	15 Settlements and Day Nurseries not heard from		
	21 Settlements and Day Nurseries report no physically handicapped		
Clubs and miscellaneous	Haines Practice	3	
	Willing Worker's Woman's Clubs	48	
	School Children's Aid Society	Not stated	
	Poor Handmaids of Jesus Christ	1	
	German Society of Chicago	7	
	Boys' Brotherhood Republic	2	
Civic, etc	Urban League		5
	Central Howard Association		6
	Volunteers of America		8
	The Chicago Christian Industrial League and Free Employment Bureau	26	
	The Salvation Army (Approximately)	800	
	15 Civic Organizations not heard from		
	8 Civic Organization report no physically handicapped		
		3,553	1,876

TABLE H—PHYSICALLY HANDICAPPED PERSONS

Disability.	Special agencies for physically handicapped.		Visiting Nurse association.		Child welfare agencies.		Spaulding school.		Training school.		Homes.		Settlements.		Clubs and miscellaneous.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Infantile paralysis	----	----	225	272	----	----	105	99	1	1	11	13	2	3	----	----
Spastic paralysis	----	----	11	23	----	----	41	23	----	----	4	2	1	----	----	----
Tubercular hip	----	----	----	----	----	----	41	26	----	----	23	14	----	----	----	----
Paralysis	16	25	7	25	1	2	----	----	2	----	2	1	3	1	1	----
Arthritis and rheumatism	4	14	2	36	----	----	----	5	----	----	----	1	----	----	----	----
Tubercular spine	----	----	2	3	----	----	13	10	----	----	14	9	----	----	----	----
Congenital deformity	----	----	----	----	4	4	5	13	----	----	10	12	----	3	----	----
Invalids	1	8	11	25	----	----	----	----	----	----	----	----	----	----	----	----
Amputations	5	2	2	6	----	----	15	3	3	----	1	----	3	1	1	----
Richitis	----	----	1	2	8	4	2	3	----	----	10	9	----	----	----	----
Tubercular joints	5	2	----	----	----	----	6	6	----	----	9	6	----	----	----	----
Heart	1	9	3	7	1	1	----	----	----	----	----	1	----	----	----	----
Varicose veins	----	15	2	----	----	----	----	----	----	----	----	----	----	----	----	----
Cancer	----	----	3	13	----	----	----	----	----	----	----	----	----	----	----	----
Osteomyelitis	----	----	----	----	----	----	6	3	----	----	3	2	----	----	----	----
Scoliosis	----	----	----	3	----	----	----	3	----	----	1	4	1	1	1	----
Deaf and dumb	----	----	2	----	----	----	----	----	----	----	----	8	2	1	----	----
Mental defectives	----	----	4	6	2	----	----	----	----	----	----	1	----	----	----	----
Partially blind	----	----	2	4	----	----	----	----	----	----	1	----	2	----	1	----
Hernia	----	----	----	----	6	2	----	----	----	----	----	----	----	----	----	----
Epilepsy	3	----	1	3	----	----	----	----	----	----	1	----	----	----	----	----
Muscular distrophy	----	----	----	----	----	----	6	2	----	----	----	----	----	----	----	----
Nephritis	----	----	----	7	----	----	----	----	----	----	----	----	----	----	----	----
Blind	----	----	1	5	----	----	----	----	----	----	----	1	----	----	----	----
Tubercular spine and joint	----	----	----	----	----	----	----	----	----	----	2	3	----	----	----	----
Fracture	----	----	----	----	----	1	----	----	----	----	2	1	----	----	1	----
Old age	----	----	----	4	----	----	----	----	----	----	----	----	----	----	----	----
Deaf	1	3	----	----	----	----	----	----	----	----	----	----	----	1	----	----
Spinal injury	4	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Locomotor ataxia	3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Loss of one eye	----	----	----	----	----	----	----	----	1	----	1	----	----	1	----	----
Neuritis	1	2	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Partially deaf	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----
Asthma	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----
Pulmonary tuberculosis	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Miscellaneous	4	6	1	3	5	1	17	8	----	----	2	3	----	----	----	----
Crippled, no diagnosis	18	21	----	----	----	----	----	----	2	1	1	4	7	1	----	----
Total	66	108	280	447	27	15	257	204	9	2	98	95	21	15	5	----

REPORTED BY SOCIAL AGENCIES OF CHICAGO.

Prisoners' aid.		Total.		Per cent.	Age distribution.									
M.	F.	M.	F.		0-2	3-5	6-9	10-15	16-19	20-29	30-49	50-59	60-69	Unknown.
		344	388	44.9	36	208	247	200	26					15
		57	48	6.3	3	10	32	48	6			1		5
		64	40	6.3		9	29	41	6	3	3			13
1		33	54	5.1	5	5	3	5	11	9	20	15	6	8
1		7	56	3.8			3	3		3	23	22	8	1
		29	22	3.1	1	11	11	23	5					
		19	32	3.1	7	8	15	16	3					2
		12	33	2.7				3	7	2	12	9	9	3
2		32	12	2.6			6	16	1	3	5	8		5
		21	18	2.3	14	14	4	2	2					3
		20	14	2.		3	10	9						12
		5	18	1.4		2		1		8	3	6	2	1
		2	15	1.							7	4	6	
		3	13	1.							7	5	4	
		9	5	.8		4	4	4	1					1
		3	11	.8	1		3	7	2			1		1
		4	9	.8		2	1		2	3	2	2		1
		6	7	.8	1	1	7		1	1	1	1		
		6	4	.6				1	1	1	2	2	1	2
1		7	2	.5	8					1				
		5	3	.5				3	2		1			2
		6	2	.5			2	4	1					1
			7	.4						2	2		2	1
		1	6	.4				2		1	1		3	
		2	3	.3	1	1	2	1						
		3	2	.3	1	1		2	1					
1		1	4	.3									5	
		1	4	.3			1		1	1		1	1	
		4	1	.3					1		2			2
		3		.1							2	1		
		2	1	.1				2						1
		1	2	.1						2	1			
			1				1							
			1			1								
1		1								1				
		29	21	3.	4	2	6	21	4	3	3			7
2		30	27	3.4			1	2	4	4	8	6		32
9		772	886	99.9	82	281	388	417	88	48	105	83	47	119

NEED OF CENTRAL REGISTRATION

The results of this inquiry show the need of closer cooperation of all agencies in the community in dealing with disabled persons. An important arrangement to facilitate cooperation is the central registration of all cases known to the various agencies. A plan of registration is described in Appendix A-4 to this report. Among the services to be expected from central registration would be the following:

1. Increasing cooperation between agencies and less duplication of effort.

2. Diagnoses and statements of social problems made successively by specialized agencies handling a case become available to all agencies concerned. For example, unsuccessful industrial placement of a man may be due to the fact that all the placement officer knows is that the man has a "lame left leg," the lameness may be due to a tubercular hip requiring either medical attention or change of occupation.

3. Accumulation of information for guidance of local agencies and State departments.

RETARDATION OF PHYSICALLY HANDICAPPED CHILDREN IN SPECIAL SCHOOL

Of 316 children enrolled at the Spaulding School for whom age and grade have been reported to the survey office, the status of advancement in school is as follows:

TABLE I—ACCELERATION AND RETARDATION OF 316 PUPILS AT SPAULDING SCHOOL.

Accelerated by 2 grades	1
Accelerated by 1 grade	6
Normal grade for age	44
Retarded by 1 grade	79
Retarded by 2 grades	78
Retarded by 3 grades	49
Retarded by 4 grades	32
Retarded by 5 grades	19
Retarded by 6 grades	3
Retarded by 7 grades	4
Retarded by 8 grades	1
Total	316

The average retardation of those retarded is 2.5 grades.

Ages and grades reached are shown in the following table, the underscore line indicating the normal grade for the age. In this schedule no unit smaller than a year or a grade is used.

TABLE II—AGE AND GRADE OF 316 CHILDREN IN SPAULDING SCHOOL.

(Underscore indicates normal grade)

Age.	Number of children.	Grade reached.							
		1	2	3	4	5	6	7	8
6	17	15	2						
7	20	18	2						
8	30	15	9	5	1				
9	26	3	10	8	5				
10	34	3	3	13	11	4			
11	46	2	6	10	12	9	5	2	
12	42		3	3	12	9	9	4	2
13	30			2	4	7	5	8	4
14	37	1		1	7	7	5	9	7
15	18				1	4	4	4	5
16	11				2		1	3	5
17	3					1			2
18	1							1	
19	1							1	
	316	57	35	42	55	41	29	32	25

APPENDIX C-3

PERSONS AFFLICTED WITH INFANTILE PARALYSIS WHO ARE KNOWN TO COMMUNITY AGENCIES OF CHICAGO

The age and sex of persons afflicted with infantile paralysis, as reported by community agencies of Chicago (see Table II, Appendix C-2) are as follows:

TABLE I—INFANTILE PARALYSIS CASES REPORTED BY COMMUNITY AGENCIES OF CHICAGO.

	Sex.			Age (Years)*				
	Total.	M.	F.	0-2	3-5	6-9	10-15	16
Visiting Nurse Association	497	225	272	36	204	138	102	15
Spaulding School	204	105	99			95	83	10
Home for Destitute Crippled Children	12	5	7		3	7	2	
Country Home for Convalescent Children	7	3	4		1	1	5	
Other Homes	5	3	2			2	2	
Training Schools	2	1	1				1	1
Total	727	342	385	36	208	243	195	26
Per cent	100	47	53	5.1	29.4	34.3	27.5	3.7

* Age not given in 19 cases.

For 599 of these cases, the part of body affected by paralysis is shown in the following table, No. 2. It is noteworthy that, as indicated

by the first four lines in the table, 88.6 per cent of these cases represent paralysis of the lower extremities. This fact is important as an indication that, aside from therapeutic treatment, a chief problem of infantile paralysis during school years is locomotion, and that these children should be fitted for sedentary occupations.

TABLE II—PART OF BODY DISABLED, 599 CASES OF INFANTILE PARALYSIS.

Part of body affected.	Number.	Per cent.
1 leg	284	47.4
2 legs	114	19.0
Lower limb and other part of body	99	16.5
One or both feet	34	5.7
One or both arms	43	7.2
Body	11	1.9
Spine	8	1.3
Total disability	5	.9
Face	1	.1
Total	599	100.0

VISITING NURSE ASSOCIATION

Of the 497 cases of infantile paralysis reported by the Visiting Nurse Association, all were receiving treatment at the time of report. The majority were being given muscle training. All were reported to be showing improvement, with the exception of a few cases in which obstacles had been met in the ignorance or indifference of parents. From the records of 372 of these cases the incidence of the epidemic may be traced as shown by the following table:

TABLE III—YEAR OF OCCURRENCE OF INFANTILE PARALYSIS AMONG CASES KNOWN TO VISITING NURSE ASSOCIATION.

Year of occurrence.	Number.	Per cent.
1916	90	24.2
1917	147	39.5
1918	36	9.7
1919	52	14.0
1920	47	12.6
Total	372	100.0

The age of occurrence, as shown in the following analysis of 147 cases for 1917, is notable for its indication that in 92 per cent of these cases the child had not passed the first year of school age.

TABLE IV—AGE OF OCCURRENCE, OF THE 147 CASES OCCURRING IN 1917.

	Number.	Per cent.
Under 1 year	3	2
2 to 3 years	92	63
4 to 6 years	40	27
7 to 15 years	12	8
Total	147	100

APPENDIX C-4

PHYSICALLY HANDICAPPED PERSONS IN CHICAGO WHO ARE HOUSE-BOUND AND OTHER ADULT CASES UNDER SUPERVISION OF VISITING NURSES.

Among the 174 persons listed in the first column of Table II, of Appendix C-2 under "Special Agencies for Physically Handicapped," are 159 "shut-ins" reported by the Vocational Society for Shut-ins. The disabilities of these 159 shut-ins are represented in the table referred to, the chief ones being paralysis, arthritis and rheumatism, and varicose veins.

Working conditions as reported for 116 of these cases are as follows:

43 idle, chiefly because they are unable to work or because suitable work has not been found.

73 are doing work in their homes.

The number of hours a day these shut-ins are able to work varies, many of them working as long as eight hours. The types of work at which they are engaged are reported as follows:

TABLE I—TYPES OF WORK DONE IN THE HOMES

By women.	By men.
Needle work.	Basket making.
Machine sewing.	Hair goods.
Card coloring.	Toy work.
Tag tying.	Brush work.
Basketry.	Coloring cards.
Knitting.	Globe work.
Crocheting.	Envelope making.
Weaving.	Occupational therapy.
Rug making.	Trying mantels.
Dressmaking.	Making victrola dusters.
Lamp shade making.	Trimming rubber goods.
Quilting.	Sorting leather bands.
Card board work.	Compiling real estate valuations.
Addressing envelopes.	Printing.
Mail order business.	Using clay.

The habitual posture or means of locomotion for the 159 cases are as follows:

117 normal.
38 use wheel chair.
4 bed-ridden.

The economic status is reported to be as follows:

106 dependent (6 United Charities cases).
26 independent.
27 not stated.

The only type of recreation reported for these shut-ins is reading, and that is mentioned in only a few instances.

PHYSICALLY HANDICAPPED PERSONS KNOWN TO VISITING NURSE ASSOCIATION

An occupational problem of a group closely related to the shut-ins covered by the foregoing analysis, is that of physically handicapped persons known to the Visiting Nurse Association of Chicago. Of the adult cases summarized in Table II of Appendix C-2, reported by the Visiting Nurse Association, the occupational status is given in 182 instances. This is summarized in relation to disabilities in the following table:

TABLE II—NUMBER NOT WORKING, AMONG 182 PERSONS 16 YEARS OF AGE OR OVER, KNOWN TO VISITING NURSE ASSOCIATION.

Disability.	Total.	Male.	Number idle.	Female.	Number idle.
Invalids—cases requiring nursing	36	11	8	25	12
Arthritis	22	1	1	21	11
Paralysis	20	3	2	17	15
Varicose veins	17	2	1	15	3
Cancer	16	3	3	13	4
Rheumatism	16	1	1	15	10
Heart	10	3	1	7	2
Mental	10	4		6	2
Amputations	8	3		5	3
Nephritis	7			7	3
Blind	6	1		5	3
Trachoma	6	2	2	4	1
Epilepsy	4	1		3	1
Old age	4			4	
Total	182	35	19	147	70
Per cent	100.0	19.2	54.3	80.8	47.9

It is noticeable from this table that in case of both men and women approximately one-half are not engaged in any remunerative occupation.

APPENDIX D-1

ONE HUNDRED AND SEVENTY-EIGHT PATIENTS IN THE MEDICAL, SURGICAL AND ORTHOPEDIC WARDS OF TWO CHICAGO HOSPITALS

This study was undertaken for the purpose of determining more exactly the relations between hospital administration and the plan contemplated in the Rehabilitation Act. It consisted of an enumeration of the patients in certain wards of two Chicago hospitals, as follows:

Cook County Hospital.....2 Surgical wards.
2 Medical wards.
2 Orthopedic wards.
St. Luke's Hospital.....1 Surgical ward.
1 Medical ward.

Two members of the survey staff, a surgeon and a social worker, interviewed each patient and consulted the interne and the hospital records, filling out the following record:

COOK COUNTY HOSPITAL WARD STUDY.

Date.....Ward.....Interne.....Att. Dr.....
Name.....Address.....Age.....
Specific diagnosis of condition under treatment.....
.....
Handicapping conditions, treatment.....
Primary.....
Secondary.....
Prognosis, medical.....
Occupational.....
Probable date of discharge.....Date admitted.....
Former occupation.....
Referred by.....Compensation.....
Name of head of family or wife.....

The dates on which the enumeration was made were as follows:

Cook County Hospital.....Sept. 28, 29-Oct. 7, 1920
St. Luke's Hospital.....Oct. 11, 17, 18, 1920

These results are valuable chiefly in affording a view of the types of cases given treatment in wards of the classes selected, in the larger hospitals, and the kind of information that is available from the hospital for the purpose of the State rehabilitation service. The value of these results as a representation of the hospital situation in Chicago is limited especially through the lack of inclusion of smaller hospital. Their representation of conditions throughout the State is problematical especially in comparison with the types of cases usually handled by the small community hospital.

THE NEED FOR PHYSICAL REHABILITATION AS SHOWN IN THE MEDICAL AND SURGICAL WARDS OF TWO HOSPITALS

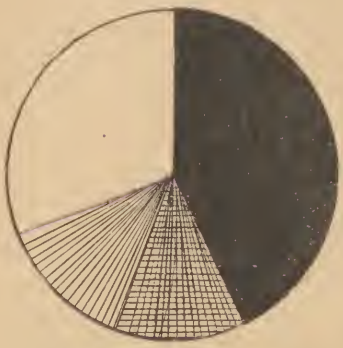
In the medical ward were found many more permanently handicapped than in the surgical ward, as shown in Table I. (See Table I on page 517.)

This is largely explained by the high percentage of chronic heart cases, the predominant group, seconded by arthritis. In almost every case interviewed, the patient suffering from chronic heart trouble had returned to the hospital many times in a few years. The failure in obtaining good results in heart cases was due to the fact that the patient could not be kept under observation for a long enough period; or the type of work and number of hours spent at work after leaving the hospital could not be supervised.

One man was particularly noticeable, who had returned to the hospital eight times in three years, spending several weeks there in each instance. He was ambitious, energetic and inclined to belittle his ailment; consequently, he took whatever work was offered to him rather than to remain idle.

Another case, which brings out the need for supervision, after leaving the hospital, was that of a colored porter, who had suffered from severe heart trouble for nine years, and during the past five years had been in the hospital several times. After leaving, improved, he returned to the Pullman Company and was sent on long trips as porter. Two or three of these experiences soon put him back in the hospital. It is doubtful now if he will ever be able to do work of any kind again. He is only thirty-three years old.

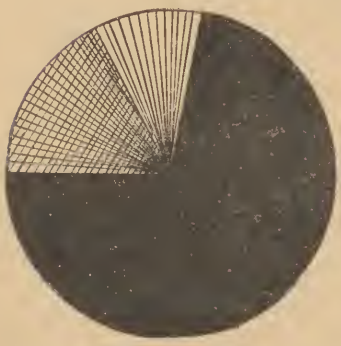
MEDICAL AND SURGICAL WARDS, BOTH HOSPITALS.



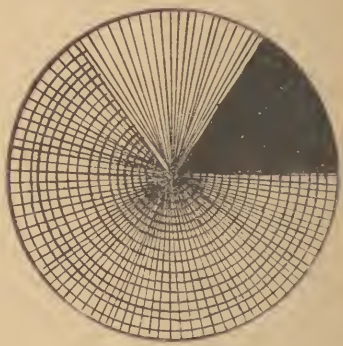
Sixty-five Men, Medical Wards, St. Luke's and Cook County Hospitals

Seventy-five Men, Surgical Wards, St. Luke's and Cook County Hospitals

ORTHOPEDIC WARDS, COOK COUNTY HOSPITAL



Eighteen Men



Fourteen Women

Need Rehabilitation

Need Supervision

Need Institutional Care

Temporary Disability

TABLE I—SOCIAL TREATMENT NEEDED BY 178 PERSONS INTERVIEWED AT ST. LUKE'S AND COOK COUNTY HOSPITALS.

	Medical wards.				Surgical wards.				Orthopedic wards.			
	St. Luke's Hospital.		Cook County Hospital.		St. Luke's Hospital.		Cook County Hospital.		Cook County Hospital.			
									Men.		Women.	
		Pct.		Pct.		Pct.		Pct.		Pct.		Pct.
1. Need rehabilitation	7	53.8	21	40.4	8	47	14	24.3	13	72.4	2	14.3
2. Need medical supervision	3	23.1	4	7.6	2	11.8	6	10.3	3	16.6	10	71.4
3. Need social supervision			1	1.9			2	3.4				
4. Need institutional care	1	7.7	7	13.5			3	5.1	2	11	2	14.3
5. Temporary disability	2	15.4	19	36.6	7	41.2	33	56.9				
Total number in ward	13		52		17		58		18		14	

TABLE II—DISABILITIES OF 178 PERSONS INTERVIEWED AT ST. LUKE'S AND COOK COUNTY HOSPITALS.

A. Medical Wards.

Disability.	Cook County Hospital.		St. Luke's Hospital.	
		Per cent.		Per cent.
Heart	17	32.7	4	30.7
Alcoholism	4	7.7		
Arthritis	4	7.7	4	30.7
Ulcer	4	7.7	1	7.9
Typhoid	6	11.5		
Various others	17	32.7	4	30.7
Total	52		13	

B. Surgical Wards.

Disability.	Cook County Hospital.		St. Luke's Hospital.	
		Per cent.		Per cent.
Accidents	*24	41.4	†15	88.2
Hernia	10	17.2		
Infections	7	12.2		
Appendicitis, abscesses, cancer, etc	17	39.1	2	11.7
Total	58		17	

* 10 of these fractures. Many street accidents, lacerations, gun-shot wounds, few railroad cases.
† 9 of these fractures. Four railroad cases and 2 taxicab accidents out of the 15.

The surgical ward had a high percentage of accident cases, and the great majority of these were fractures. The many cases of hernia, fractures and appendicitis, etc., keeps the surgical groups more nearly normal. Although the age average is lower, the need for rehabilitation is even greater, as shown in the chart following Table I. This is explained in part by the greater number of severe accidents among the younger men. The Industrial Commission report shows that the percentage of seriously injured takes a sudden leap at twenty-one, and holds

the same average until forty is reached, when there is a decided slump. From the information obtained in the survey of twenty-three industries (See Appendix F-1, Study of 23 Industrial Plants), it was found that 45.3 per cent were hurt between the ages of thirty and fifty. This is the period when a man has the heaviest responsibilities. On the other hand the medical ward shows a sudden increase in its number of cases over thirty years of age.

(See Table III on page following.)

SOCIAL TREATMENT

In making the five classifications in Table I, the interne in charge was consulted as to the patient's diagnosis and probable medical prognosis, an examination of the medical chart was made and, in a majority of cases, the patient himself was consulted.

"Needs rehabilitation" was a term used in its industrial sense rather than in the physical sense. It expresses whether or not a man would be able to return to his former occupation on leaving the hospital. For example:

> A young colored man about thirty years of age was very ill from lead poisoning, having worked in a white lead factory for a long time. This man is classed in the "rehabilitation group" as he will be unable to return to his former occupation. Whereas, an elderly man, badly crippled by osteo-arthritis, was a skilled workman on musical instruments. His disability will in no way interfere with his work, and he is classed among the "need of medical follow-up."

The word rehabilitation includes necessary medical treatment; therefore, the group "in need of medical treatment" implies that the man will be able to return to his old job, but will need some supervision. Example:

> A young colored man who had a dilated muscle of the heart, due to an infection, with intelligent care, after leaving the hospital, should completely recover. On the other hand, the trouble, aggravated by abuse, might eventually become chronic heart trouble.

They also include the chronic invalid group who will return home, and who ordinarily would have the attention of the Visiting Nurse Association.

TABLE III—AGES OF 178 PATIENTS INTERVIEWED AT ST. LUKE'S AND COOK COUNTY HOSPITALS.

	Medical wards.				Surgical wards.				Orthopedic wards.			
	St. Luke's Hospital.		Cook County Hospital.		St. Luke's Hospital.		Cook County Hospital.		Cook County Hospital.			
									Men.		Women.	
		Pct.		*Pct.*		*Pct.*		*Pct.*		*Pct.*		*Pct.*
Below 20 years	1	7.7	2	4	1	5.5	6	10.3	3	16.7	5	35.7
Below 20-29years	1	7.7	3	6	4	23.5	11	19	6	33.3	3	21.4
30-50 years	7	53.8	13	26	6	35.5	18	31	7	38.9	4	28.6
Above 50 years	4	30.8	16	32	6	35.5	†18	31	2	11.1	2	14.3
Unknown			*18	33			5	77				
Total			52		17		58		18		14	

* Cases whose ages were unknown were almost entirely in the temporary disability group.
† Three of these cases were above 70 years of age.

Need institutional care, are the very sick with poor prognoses, who will probably die in the hospital, or the very helpless and severe chronic illnesses, such as cancer.

Temporary disability is the large group who may be expected to return to normal, after a short period of convalescence.

THE INDUSTRIAL PROBLEM

In almost every case the patient was interviewed as to his former occupation and his probable future. Usually, the men appeared not to have considered their future possibilities and had no suggestion themselves to offer as to the kind of work for which they might be fitted.

The fact that men of better education and belonging to the more skilled group are more easily reassimilated into industry, after becoming disabled, is clearly brought out in the comparison of the patients at Cook County and St. Luke's Hospitals. The majority in Cook County Hospital were laborers, machinist helpers and mendicants; whereas, St. Luke's patients were on a higher level, composed of carpenters, machinists, engineers, railway men, salesmen, etc. In one ward in St. Luke's Hospital, out of thirteen patients, six had jobs waiting for them with their old concerns, although out of the six, four would be unable to return to their former jobs. The men all showed records of having worked for the same company for many years, and in every case the readjustment should require little time and effort.

TABLE IV—ORTHOPEDIC WARDS OF COOK COUNTY HOSPITAL.
Men and Women in Orthopedic Wards.

Disease.	Men.	Women.
Tubercular joint	6	4
Tubercular spine	7	4
Arthritis	3	4
Others*	2	2
Total	18	14

* Osteomyelitis, poliomyelitis, flat foot, scoliosis.

The orthopedic ward, eighteen men and fourteen women, was composed almost entirely of old tubercular spine and joint cases. In the men's ward, thirteen out of the eighteen were tubercular, and in the women's ward, eight out of the fourteen. In both, the remainder, excepting two, were arthritis cases. The group is not so interesting to this study as the wards appeared to be a dumping ground for old stubborn cases, except in showing the difference of treatment apparently needed for men and women with the same disability.

As shown in Table I, a large percentage of the men needed rehabilitation and a comparatively small group among the women. This is partially explained by the larger number of girls of school age, in the group, also because of their type of work. For example:

> A young woman with tubercular hip had been a milliner (trimmer). After leaving the hospital she will be able to return to her work.

Another instance is a young colored woman with arthritis, who had previously worked in a shade factory and will be able to continue on leaving the hospital.

The married women were to return home to care for their children, and would be helped with the washing, scrubbing, etc., by the children and husbands.

The most striking case in need of rehabilitation was that of a well educated elderly woman, suffering with tubercular spine and lupus (tubercular skin disease) on the face and neck. On recovering she will be frightfully disfigured. She has been a governess all her life.

The men suffering similar disabilities had been laborers, machine helpers, teamsters, machine movers, etc., all the heavy lower types of labor depending on physical strength alone. Others had make-shift jobs, such as vaudeville performer, helpers in food factories and seasonal jobs, probably because of their inability to work steadily. A note was made in this ward of the cases which had been previously treated in hospitals. Out of eighteen, fifteen had been in a hospital at least once before, and of the fifteen, ten had been treated in Cook County Hospital before.

APPENDIX D-2

NUMBER OF PHYSICALLY HANDICAPPED PERSONS LEAVING LOCAL HOSPITALS, AND SPECIAL FACILITIES FOR THEIR TREATMENT

On August 12 a letter was sent to 237 hospitals and allied institutions in Illinois, calling attention to the Rehabilitation Act and especially to the section referring to hospitals. A questionnaire was enclosed for information on the following points:

> 1. Whatever statistics or estimates you may be able to give, of number of cases discharged from the hospital during your last fiscal year that left with permanent or chronic physical disabilities.

2. List of *physio-therapeutic apparatus* with which the hospital is equipped.

3. Organization and staff for *occupational therapy,* with account of training given and number of patients.

4. *Social service* organization and staff, work accomplished and number of patients followed up after discharge during your last fiscal year.

Replies were received from 101 of the 237 institutions canvassed.

Estimates made of the number of physically handicapped persons discharged from the hospital during the last report year may be summarized as follows:

TABLE I—PHYSICALLY HANDICAPPED PERSONS LEAVING HOSPITALS DURING ONE YEAR.

	Number of persons.	Beds in the hospital.
Cook County Hospital, Chicago	1,042	2,700
St. Luke's Hospital, Chicago	500	400
St. John's Hospital, Springfield	200	350
Michael Reese Hospital, Chicago	133	452
Evanston Hospital Association, Evanston	100	145
24 other hospitals	430	1,549
Total	2,405	5,596

Answers to this question, while they are for the most part estimates, and while they do not include a number of large hospitals, afford evidence of the extent to which the State rehabilitation service will be called upon to visit disabled persons before their discharge from hospitals. According to the foregoing table, by the estimates of managing officers of hospitals, the number of physically handicapped persons discharged last year is 43 per cent of the number of beds in these hospitals. The twenty-nine institutions included in this table are general hospitals. The capacity of one hundred and seventy-six general hospitals in Illinois, as given in Appendix D-3, is 17,404 beds. Applying the proportion of 43 per cent, the number of physically handicapped discharged annually would be 7,483.

It is noteworthy that among the 29 hospitals reporting on this point, nearly four-fifths of the number of physically handicapped persons were handled by five hospitals. From this is indicated the possibility of organizing the work of first visitation, as required in the Rehabilitation Act, in connection with the larger hospitals, and the further possibility of reduction in the amount of interviewing that may be required through close cooperation with the social service staffs of these larger hospitals.

Provisions in eighty-two hospitals making reply concerning physio-therapeutic apparatus are summarized as follows:

Have no physio-therapeutic apparatus	63
Have some physio-therapeutic apparatus	19

The types of apparatus usually listed are hydro-therapeutic and electro-therapeutic equipment.

With regard to organization and staff for occupational therapy, the replies indicate:

No organization or staff	71
Have organization and staff	4
	75

In one hospital the occupational-therapy department includes three workers; in another this work is regularly supervised by members of the medical staff.

Regarding social service organization and staff the replies indicate the following situation:

Social service organization reported	6
Social service organization in prospect	4
Special interest in following up cases after discharge and in using local service agencies	7
No organization	84
	101

In this connection it should be noted that social service organization is known to exist in connection with 21 local hospitals and other medical agencies as listed in section D-3 of this appendix, immediately following.

The following special reports from the largest general hospital in the State, Cook County Hospital, with a capacity of 2,700, is of special interest in connection with questions summarized above.

Physically handicapped patients who left the Cook County Hospital during the year 1920, were approximately as follows:

Osteomyelitis	104
Organic heart disease	378
Myocarditis	130
Tuberculous bones and joints	129
Osteo-arthritis and arthritis deformans	166
Chronic nephritis	135
	1,042

The social service director has assigned two women to care for physically handicapped persons, one to orthopedic and one to cardiac cases.

	Number.	Visits.	Employment secured.
Orthopedic—			
Men	95		
Women	65	311	
Cardiac—			
Men	90		
Women	37	183	
Total	287	494	50

Of an approximate total of 1,042 cases, 287 were cared for by the social service department.

APPENDIX D-3

HOSPITALS, DISPENSARIES AND CLINICS IN ILLINOIS

The location, types and number of hospitals in Illinois are reported to be as follows:

TABLE I—HOSPITALS OF ILLINOIS.*

General hospitals—	
100 or more beds	60
25 to 99 beds	114
Less than 25 beds	43
Not stated	15
Children's hospitals	3
Sanitorias, or homes for convalescents	6
Industrial hospitals	7
Orthopedic hospitals	1
Surgical hospitals	1
Tuberculosis hospitals	18
Sanatoria devoted to hydro-therapeutic treatment, electro-therapeutic, or physio-therapeutic treatment	2
Other types of hospitals and allied institutions	169

* From correspondence with the Modern Hospital Publishing Company, Chicago.

For 176 general hospitals in Illinois of 25 or more beds, the capacity and volume of work per year are reported by the American College of Surgeons to be as follows:

TABLE II—GENERAL HOSPITALS OF ILLINOIS CAPACITY AND VOLUME OF WORK.[1]

	Total.	25-99 beds.	100 or more beds.
Number hospitals	176	125	51
Total number of beds	17,404	6,379	11,025
Number population to one bed	[2]363	990	573
Number patients per year	317,805	110,535	207,270
Average number patients per bed	18	17	19
Per cent population treated per year	[3]5.03	1.75	3.28
Total number days' treatment	6,350,978	2,327,867	4,023,111
Average number of days' treatment	20	21	19
Ratio patients to population	[4]20	57	31

[1] Bulletin of the American College of Surgeons for January, 1920, pp. 21-23.

[2] For all states, the average is 483. Illinois is eighth in the list of states, the lower figures being for California, Connecticut, District of Columbia, Maryland, Minnesota, Montana and New York.

[3] For all states, the average is 350. Illinois is fifth in the list of states, those showing greater percentage of population treated in hospitals being California, District of Columbia, Montana and New York.

[4] For all states the average is 1 to 29. Illinois is fifth in the list of states, the states showing more favorable ratios being the same ones as given in Note 3.

DISPENSARIES AND CLINICS

The number, location and types of dispensaries and clinics in the State were reported by the State Health Insurance Commission in 1919 to be as follows:

TABLE III—DISPENSARIES AND CLINICS IN ILLINOIS.*

CHICAGO.		
General dispensaries		19
Special dispensaries—		
Eye, ear, nose and throat	2	
Women and children	4	
Children	4	
Obstetrics	2	
Venereal disease	2	
Osteopathy, chiropractic, etc	5	
Dental	14	
Tuberculosis	8	
		41
		60
ILLINOIS OUTSIDE OF CHICAGO.		
General dispensaries		8
Special dispensaries—		
Tuberculosis	18	
Infantile paralysis	11	
Other special dispensaries	8	
		37
		45

* Report of the State Health Insurance Commission, 1919, p. 348.

While it is not possible to make an exact comparison between the types of service rendered or even between the number of patients handled respectively by hospitals and by dispensaries or clinics, an approximate idea of the situation in Chicago may be gained from the following figures taken from the report of the Chicago Department of Health, to which these agencies are required by law to report.

TABLE IV—NUMBER OF PATIENTS TREATED, YEAR 1918, BY HOSPITALS AND DISPENSARIES OF CHICAGO REPORTING TO THE CITY DEPARTMENT OF HEALTH.*

98 HOSPITALS. (87 General, 11 Maternity.)		27 DISPENSARIES.	
		Old cases	103,159
Admissions—		New cases	68,505
Medical cases	49,912		
Surgical cases	82,797	Total	171,564
Total	132,709	Under 14 years	68,789
		Over 14 years	102,775
		Total	171,564

* Report for 1911-18, pp. 1066-7.

Medical social service departments are reported by the American Association of Hospital Social Workers for Illinois as follows:

State Institutions:
- Elgin State Hospital.
- Jacksonville State Hospital.
- Illinois School for the Blind, Jacksonville.
- Illinois School for the Deaf, Jacksonville.

Chicago Hospitals and Dispensaries:
- Central Free Dispensary.
- Chicago Lying-in Hospital.
- Children's Memorial Hospital.
- Children's South Side Free Dispensary.
- Cook County Hospital, Illinois Training School.
- German Hospital of Chicago.
- Hahnemann Hospital.
- The Home for Destitute Crippled Children.
- Jewish Dispensary.
- Northwestern University Dispensary.
- St. Luke's Hospital.
- Mary Nazareth Hospital.
- Michael Reese Dispensary.

Juvenile Psychopathic Institute.
Mercy Hospital.
Passavant Memorial Hospital.
Presbyterian Hospital of Chicago.
Resthaven Convalescent Home.
Chicago State Hospital.
Wesley Memorial Hospital.
West Side Dispensary.

APPENDIX D-4

THE CENTRAL HOSPITAL GROUP AT CHICAGO

The plan and history of the Central Hospital Group, now under construction at Chicago, are given in the three articles in the Institution Quarterly here referred to, and summarized in the initial quotation:

> A working agreement has been entered into between the State Department of Public Welfare and the University of Illinois Medical School for the creation of a great central group of hospitals for research. Two squares, formerly the Chicago National Ball Park, south of the Cook County Hospital in Chicago have been purchased and soon work will begin on the construction of buildings to house the Illinois Charitable Eye and Ear Infirmary, now located at 900 West Adams Street, Chicago; the State Psychopathic Hospital and Institute, the nucleus of which is now at the Chicago State Hospital and the Surgical Institute for Crippled Children, created a few years ago but never vitalized by an appropriation. These three institutions are contributed by the Department of Public Welfare. The medical school will build a clinical hospital. One million and a half dollars are available to begin this work. Architects have finished the block plan and are now working on detailed plans so that construction may begin in the spring.
>
> Future plans call for a number of other hospitals and institutions and the removal of the college laboratories to new buildings on the site. The department will administer the group and the university will furnish the professional service.
>
> Included in the functions of this group will be the State's training schools for psychiatric nurses, social workers and occupational therapists and hydrotherapists, the department having established the policy of training its own specialists for its institutions.—Institution Quarterly, March 31, 1920, p. 115.

"The Need of a Central Hospital for the State" by Dr. Edward H. Ochsner, president, Illinois State Charities Commission, a paper read before the Chicago Woman's City Club, February 19, 1917, appearing in the Institution Quarterly for March 31, 1917.

"Illinois Central Hospital Group" a description of the project in its preliminary state, Institution Quarterly for September 30, 1919, pp. 10-14.

"The Medical Organization of the State Department of Public Welfare" by A. L. Bowen, a paper written for "Modern Medicine." Institution Quarterly for March 31, 1920, pp. 114-117. From this the above extract is taken, indicating the results achieved at that date.

APPENDIX D-5

HEALTH CENTER—SOMETIMES CALLED COMMUNITY CENTER

(An outline prepared for the present report by Dr. Frank Billings.)

1. A health center embraces a modern hospital with laboratories—chemical, bacteriological, serological, X-ray and pathological—adequately equipped, and an out-patient department to serve as a diagnostic center for a community. The hospital to contain one bed for each unit of five hundred people in the community it serves. The hospital to care for the sick and injured requiring hospital care, a lying-in department, a pavilion for tuberculosis, a pavilion for contagious diseases including patients suffering from diphtheria, scarlet fever, measles and the like.

2. The organization of the center involves a personnel of full-time individuals including a qualified medical director, qualified laboratory technicians, medical social workers, public health nurses and other individuals whose services may be required as the work of the center develops.

3. A commission to conduct the business administration of the center to be composed of three or five commissioners, one or more of whom should be a medical man or woman, to be elected by the people of the district or appointed by the county judge or other officer.

4. A medical board of management to be responsible for the medical and surgical care of the patients of the out-patient department and of the hospital. This board to be appointed or nominated by the County Medical Society subject to the approval of the directing commission of the center.

5. The Department of Health of the State to standardize the hospital and other buildings to insure uniformity and also the laboratories, the equipment, and the public health work carried on in the center. The laboratories of the center to serve as branch laboratories of the main central laboratory of the Department of Health of the State.

6. The work of administration of the health center to be carried on by the people of the district served through its business commission, the medical board of management, and the full-time personnel under the qualified director mentioned. (Decentralization of administration is, I believe, necessary for effective work in health matters.)

7. A health center may serve a community of say one hundred thousand or more people as residents of a political geographical territory in a ward or wards of a city; a township, a county or a district of two or more counties.

8. That a community of a territory described in paragraph 7, may establish such a center, a bill including the principles and policies enumerated in all of the paragraphs above written should be prepared to secure an enabling act permitting the people by referendum to tax themselves directly or by issue of bonds upon the territory involved, to establish such a center, and to maintain it from year to year.

9. The State may encourage the people of the district to establish such a center by voting a subsidy of say 25 per cent of the cost of construction of necessary buildings, purchase of equipment, etc., and also in the maintenance of the center from year to year. This would give the State a rational basis for the right to standardize the character of buildings, equipment, and to supervise and standardize the character of public health work carried on in the center.

10. A center so organized affords the medical profession of the center facilities of diagnosis and the treatment of the people of the district. The members of the medical profession of the district who are lawfully licensed to practise medicine, should have access to the diagnostic facilities of the center and to the hospital for the treatment of such patients as may need hospital care. No interference with individual practice should be contemplated, but under the qualified director, the character of the work done in the hospital by the members of the medical profession would be under surveillance and encouragement given to each doctor to improve his own practice by the adoption of better methods or by the assistance which will be readily available to him. Indeed, the center will serve as a postgraduate school to the medical members of the center and enable each doctor to improve his professional work, if that is needed. While individual practice will not be interfered with, there will be a natural tendency toward group practice.

11. It will be seen, therefore, that an established, well organized health center will furnish the community of the center with modern up-to-date medical and surgical service, medical social care, public health activities in the prevention of disease, in maternity, in parental and infant and child welfare, in school children inspection and treatment and the supervision of the physical education of the children of the district. It will furnish the medical profession of the district with up-to-date modern facilities of diagnosis and treatment of the people of the district.

APPENDIX E-1

PLACEMENT TRAINING GIVEN BY INDUSTRIAL CONCERNS OF CHICAGO

The following summary consists of extracts from a study of the subject made by Mr. H. D. Byrne, of the State Normal College, Kent, Ohio, under appointment as an assistant in the present survey of the physically handicapped. The complete report of the study has been submitted as a thesis for the degree of Master of Arts at the University of Chicago.

This study was undertaken to ascertain the exact extent and character and growth tendencies of the training given the employees of Chicago firms. It is confined wholly to training, organized and conducted by the various industrial establishments, and thus excludes the continuation schools, as well as the schools conducted entirely out of the funds of the various public, semi-public, and private agencies.

On June 14, 1920, a carefully prepared questionnaire was sent out to 435 firms in Chicago employing an aggregate of about 400,000 people. This was later followed by a letter to the firms, which had failed to respond. In many cases the second and third letter was written, supplemented by numerous telephone calls, in an attempt to make the data as complete as possible. In addition to this, personal visitation was made to several of the representative industries. In these various ways reports were had from a total of 231 firms. Of this number, 192 or 83 per cent replied in the negative; that is, they were giving no training. The other 39 firms, or 17 per cent of those reporting, replied that they were giving some form of training. This varied in extent and character in the different firms from a simple beginning on the one hand to thorough and systematic courses on the other.

FIFTEEN CHICAGO FIRMS GIVING MOST SYSTEMATIC TRAINING, AS SHOWN BY THEIR REPORTS

The Northern Trust Company.
The A. T. & S. F. Railway Company.
Commonwealth Edison Company & Central Station Institute.
Montgomery Ward & Company.
The Federal Reserve Bank of Chicago.
The Union Special Machine Company.
Butler Brothers.
Automatic Electric Company.
R. R. Donnelley & Sons Company.
Marshall Field & Company (Retail).
Curt Teich & Company.
Postal Telegraph Company.
Western Electric Company.
Armour & Company.
The International Harvester Company (Reported by Four Plants).

TABLE I—SHOWING RANK, NUMBER AND PER CENT OF FIRMS OFFERING SOME FORM OF TRAINING, BY INDUSTRIES.

Industry.	Number of firms reporting.	Number of firms offering training.	Per cent of firms offering training.	Rank.
Automobile—including bodies, parts, accessories	5			
Banks and trust companies	11	3	27	6.5
Car construction	2	1	50	3
Chemical manufacturers—including paints, oils, varnishes, soaps, perfumes, rubber, etc	12			
Clothing and furnishings	17	2	12	12
Electrical machinery, apparatus and supplies	7	3	43	4
Foundry and machine shop products	22	6	27	6.5
Food products—cereals, yeast, starch, confections	12			
Iron and steel, steel works and rolling mills	19	3	16	10
Leather, and leather goods	10			
Merchandise—wholesale	13	1	8	13
Merchandise—retail	11	4	36	5
Merchandise—mail order	4	4	100	1
Paper boxes, bags, etc	7			
Pianos and furniture	7	1	14	11
Printing and publishing	18	3	17	9
Service companies—telephone, telegraph, news, dairy, light, power, railway	19	5	26	8
Slaughtering, meat packing	3	2	67	2
Miscellaneous	32	1	3	14
Total	231	39		

In general the data shows that industries which employ a large percentage of common labor do the least in the way of training. On the other hand those employing more highly skilled labor and especially clerical people, are found to offer considerable in the way of training facilities.

TRAINING COURSES OFFERED

For purposes of clearness and convenience the training courses offered were classified under four general heads:

1. Company business, practice and policies (14 firms).
2. Complete trade training (22 firms).
3. Short unit courses for operators, inspectors, etc. (13 firms).
4. General or up-grading training (7 firms).

COMPANY BUSINESS, OR PLANT PRACTICE AND POLICIES

Company business, or plant practice and policies include training courses that are peculiar to a particular business or industry (plant) in a rather strict sense. Such training would be marketable only in a very limited field.

Fourteen firms report courses under this head, as follows:

Clerical, special.
Company methods, etc.
Department operations (2).
Elements of banking.
Electrical, special.
Federal reserve system.
General course.
History of banking.
Modern productive methods (packing).
Office training.
Paint manufacture and uses.
Salesmanship (2).
Store rules, systems, etc. (3).
Supervisors.
Superintendents.

SHORT UNIT COURSES FOR OPERATORS, INSPECTORS, ETC.

Short unit courses are those requiring skill in a limited number of operations or processes. For the most part they can be mastered in a brief period of time and are marketable in a rather wide field.

The following short unit courses were reported by twenty-two firms:

Adding machine operators (4).
Automatic telephone operators.
Bookkeeping.
Bookkeeping machine operators (3).
Billing clerks (2).
Cashier's inspectors.
Cash register operators.
Comptometer (2).
Cutters.
Dictaphone operators.
Elevator operators.
Endorsing machine operators.
Floor managers.
Graphotype operators.
Hand sewers.
Indexing clerks.
Morse operators.
Parcel carriers.
Sales clerks.
Service desk clerks.
Sewing machine operators (2).
Supervisors.
Stenographers.
Telephone operators (2).
Telegraphy.
Typewriting (5).

COMPLETE TRADE TRAINING

Complete trade training comprises the usual training of the craftsman. Thirteen firms report training of this type including the following trades:

Auto body layout and construction.
Boilermaker.
Carman.
Drafting.
Electrician.
Electrical engineering.
Machinist.
Mechanics (2).
Molding.
Operative engineers.
Printing (2).
Sheet metal worker.
Telephone mechanic.
Tool, disc and die making (3).

GENERAL, OR UP-GRADING TRAINING

General, or up-grading training, includes courses of purely cultural value, as well as those that combine a commercial value along with the cultural. The courses listed here are distinct from those reported later under Americanization. Seven firms have checked general training in the following subjects:

Arithmetic.
Business English.
Civics.
Commercial geography.
Economics.
English grammar.
French.
Literature.
Public speaking.
Spanish.
Writing.
Lectures (general).

Besides the courses listed here, which are conducted by the various firms individually, a considerable amount of training is done by Chicago firms in a cooperative way. Two important organizations of a distinctly cooperative type, which conduct training, are the Chicago Typothetae School of Printing, and the Chicago Chapter of the American Institute of Banking. The former is maintained by about twenty printing firms. It takes on boys who have completed the eighth grade and trains composing room apprentices for all the twenty firms.

TABLE II—SHOWING CHARACTER OF INSTRUCTION—METHODS AND DEVICES USED BY THIRTY-EIGHT FIRMS.

Methods.	Regular.	Occasional.	Incidental.
Lectures	6	13	
Study-recitation	9		
Supervised study	4	2	2
Laboratory: Scope—			
To produce operating skill	4	2	
To educate in theory of production	5	1	
Shop work: Supervised by—			
Older employees	5	3	2
Shop foremen	5	12	
Shop instructors	7	1	
Inspection or observation trips—			
Within the plant	5	3	
To other plants	1	2	

THE TEACHING STAFF

The instructors in the cases reported represent various degrees of professional training. Some are simply individuals with a good knowledge of their subject who have shown special aptitude for teaching and have been assigned to that work. Others are individuals with a high degree of professional training and often with considerable public school experience. In cases where three or more instructors are employed by a firm the one in charge of the educational work is generally well trained and is given the title of educational director. The duties of the latter include the planning of courses, the selection of subject matter and general supervision of the educational work as well as teaching.

A number of other persons assist in instruction in the larger plants. These are foremen and experienced employees. Their service is in connection with the production end of the business and is not a part of the class room or theoretical phases of the work.

The salaries paid the instructors indicate, in a measure, the importance attached to educational work by industry. These range from $1,500 to $3,600 per year. The approximate average is $1,800. Since a number of the instructors are women, the salaries compare favorably with those of teachers in the public schools of Chicago.

METHOD OF SELECTING EMPLOYEES

The methods a firm uses in selection and promotion of its employees has a significance in connection with placement training. For this reason a section in the questionnaire was devoted to this topic. The firms were asked to check the methods used and to rank numerically the three they considered the most important. The general results, as reported by twenty firms employing over 50,000 people, are shown in the table below:

TABLE III—SHOWING METHODS OF SELECTING EMPLOYEES AND THEIR RELATIVE RANK ON BASIS OF FREQUENCY REPORTED BY TWENTY FIRMS.

Methods.	Rank.	Graphic and percentage representation of importance on basis of frequency.
Personal interview	1	19 cases—95 per cent.
Personal recommendation	2	13 cases—65 per cent.
Written application	3	13 cases—65 per cent.
Trial service in plant	4	12 cases—60 per cent.
Intelligence tests	5	6 cases—30 per cent.
Information tests	6	4 cases—20 per cent.
Special abilities tests	7	2 cases—10 per cent.
All psychological tests	8	12 cases—60 per cent.

APPENDIX E-2

PRIVATE SCHOOLS OF CHICAGO AFFORDING VOCATIONAL TRAINING OPPORTUNITIES

The following information is taken from a dissertation entitled—"Vocational Training Opportunities for Young Men in 127 Private Schools of Chicago," presented by Joseph V. Hanna in June, 1920, as a Master's thesis at the University of Chicago.

One hundred and nineteen of the 127 schools were classified as follows:

Art schools	3
Law schools	7
Schools of medicine and surgery	7
Engineering schools	3
Schools of theology	7
Schools of music and expression	35
Schools for teachers and social workers	5
Business colleges and shorthand schools (including private high school commercial courses)	22
Miscellaneous schools	8
Technical, industrial and trade schools	17
Commercial schools of college grade	5

The last two groups are listed as follows:

Technical, Industrial and Trade Schools.

GROUP I.

1. Chicago Technical College.
2. The Joseph G. Branch School of Engineering.
3. Pullman Free School of Manual Training.
4. Coyne Trade and Engineering School.

GROUP II.

1. Chicago Painting School.
2. The Koester School.
3. Greer College of Automatic Engineering.
4. Moler Aviation School.
5. National Petroleum Schools.
6. Ambu Engineering Institute.
7. Chicago School of Watchmaking.
8. Winter School of Engraving.
9. Moler School for Training of Barbers.

10. Siebel Institute of Technology.
11. National School of Mechanical Dentistry.
12. American Ladies' and Gentlemen's Cutting and Designing School.
13. Chicago Telegraph Institute.

Commercial Schools of College Grade.

1. College of Commerce, De Paul University.
2. School of Commerce, Northwestern University.
3. Y. M. C. A. School of Commerce.
4. College of Commerce and Administration, University of Chicago.
5. Mayo College of Commerce.

In addition, three school systems are described as follows:

Knights of Columbus, 3 Evening Schools.
Jewish Educational Centers.
Young Men's Christian Association Schools.

The schools studied are for the most part listed in the College and Private School Directory of the United States, published by the Educational Aid Society. Questionnaires were mailed originally to 235 addresses of private schools. Concerning the representative character of the study, the author said:

> A large majority of schools listed, particularly professional schools and other schools of college grade, have responded with information desired. We can without hesitancy, therefore, conclude that the 127 private schools treated are representative, and in the main inclusive, of the best there is in Chicago private schools.

The absence of uniformity of admission requirements, of tuition fees, and of courses of study is noted particularly by the author. Regarding entrance requirements he says:

> It is easy to understand that private schools which are operated primarily for profit are willing to receive students irrespective of previous training. Schools which are exceptions to this rule, in appealing to higher grade students, doubtless find it more profitable to impose entrance requirements, thus maintaining somewhat higher standards. The business colleges furnish the most striking example of schools making practically no demands for preliminary training of their students.

APPENDIX F-1

A STUDY OF JOBS AND CONDITIONS OF WORK IN 23 CHICAGO PLANTS, WITH RESPECT TO THE EMPLOYMENT OF DISABLED PERSONS

In order to determine the conditions under which physically handicapped persons may be reestablished in industry, a field study of concerns in and near Chicago was undertaken. The character of industries in Illinois and the volume of their products as reported in the United States Manufacturers' Census for 1914 were studied. For each industry a chart was made to show the number of plants of various sizes. Twenty-three plants belonging to the largest employing industries were selected for visitation. The relation of each concern to the employment of physically handicapped persons, including such circumstances as general industrial conditions and attitudes of foremen and employment man-

agers were noted. In each plant all types of work being done were observed, and several jobs were selected for examination to determine the possibility of employing persons with various kinds of disability. The visitations were made by two investigators together and only those conclusions were set down upon which they were in agreement.

From this study it appears:

That 9 per cent of the positions in plants visited could be filled by disabled workers.

That certain disabilities are less handicapping than others.

That certain circumstances of employment are more important than physical fitness of the man for the job.

TABLE I—TWENTY-THREE INDUSTRIAL PLANTS SELECTED FOR STUDY.

Key No.	General industrial classification.	Specified type of work done.	Number of employees.		Number of jobs Analyzed.
			Male.	Female.	
1	Bakery products	Manufactures cookies	200	200	4
2	Steam car construction	Manufactures freight cars	600	20	4
3	Steam car construction	Steam railway maintenance	595	5	4
4	Men's clothing	Manufactures men's ready to wear	40	10	2
5	Men's clothing	Manufactures men's furnishings	225	225	4
6	Confectionery	Manufactures high grade candy	325	325	6
7	Electrical machinery and apparatus	Manufactures laboratory and special apparatus	90	4	7
8	Electrical machinery and apparatus	Manufactures parts of and assembles electric iron	420	180	8
9	Electrical machinery and apparatus	Manufactures switch boards	1,082	544	2
10	Foundry and machine shop products	Manufactures building hardware	200	30	6
11	Foundry and machine shop products	Manufactures all brass	375	45	3
12	Foundry and machine shop products	Manufactures die castings	500	12	3
13	Furniture manufacturers	Manufactures couches	390	60	2
14	Furniture manufacturers	Manufactures reed furniture	92		3
15	Leather manufacturers	Manufactures leather	540	60	5
16	Lumber and timber products	Manufactures doors, sash and cabinet	100		4
17	Musical instruments, pianos and organs	Manufactures phonographs	725	75	3
18	Musical instruments, pianos and organs	Manufactures pianos	180		2
19	Tobacco manufacturers	Manufactures cigars	200	26	2
20	Wholesale merchandising	Wholesaler and manufactures groceries	600	400	1
21	Copper, tin and sheet iron products	Manufactures tin cans	1,450	400	8
22	Copper, tin and sheet iron products	Manufactures tin can covers	250	400	7
23	Paints and varnishes	Manufactures paint	1,060	150	2
	Total		10,229	3,171	92

STATE OF ILLINOIS, DEPARTMENT OF PUBLIC WELFARE SURVEY OF THE PHYSICALLY HANDICAPPED.

JOB ANALYSIS CARD.

Plant
1. Machine
2. Posture:
Sitting Standing Walking
3. Work:
Heavy Medium Light
4. Strain:
Bending Reaching Lifting
5. Accuracy:
6. Judgment:
7. Sight:
8. Hearing:
Job description:

Job name
Number in plant
9. Unionism: Yes No
10. Apprentice: Number weeks
11. Training: School
(a) On job
(b) Elsewhere in plant
(c) Outside plant
12. Hours Lunch
13. Pay plan: Piece Day
14. Wage: Maximum Minimum

DISABILITIES LIST.

1. Amputation or lack of use of:
(1) leg: One Two
(2) arm One Two
(3) hand: One Two
(4) fingers:
2. Back or neck ailment:
3. Weak heart:
4. Sight:
(1) Blind
(2) Defective
5. Hearing:
(1) Deaf
(2) Defective
6. Lungs:
7. Rupture:

The chief values of this study appear to have been as follows:

1. A comprehensive idea was obtained of the possibilities for physically handicapped persons in industries. The analyses of individual jobs, while in no sense final and conclusive, will afford some guidance in placement work and helpful clues for further study. The general picture of the situation, statistically, affords a concrete basis for determining to what extent physically handicapped persons may be expected to be taken into industrial plants.

2. The detailed examination of jobs has revealed to a surprising extent the importance of circumstances other than those involved in the specific matching of a man's physical capacities with the particular operations that are to be performed on any given job. Examples of this physical matching of disabled men with jobs exclusive of other considerations, are the study of "Opportunities in Ship-building for the Physically Handicapped" made by the United States Shipping Board Emergency Fleet Corporation, and the study of opportunities for blinded soldiers made during the war, for the American Red Cross by Mr. A. L. Seegur and others.

3. Contacts were made with employers and employment managers which were useful, not only in securing information, but also in opening the way for cooperation in the administration of the Rehabilitation Act. At the same time, the survey office gained a familiarity with a varied series of jobs and with working conditions in general that will be helpful in the administration of the law.

4. A technique of industrial survey relating to the employment of physically handicapped persons was developed, which will be useful for future industrial studies, as contemplated in the Rehabilitation Law. This relates especially to:

1. Form of inquiry at the industrial plant:
   (a) Officials to see and plan of interview.
   (b) Scheme of job study.
2. Cooperating groups in the industrial community.
3. Correlation with industrial data already available.
4. Use of results of field work for practical placement of disabled persons.

The first and second groups of findings in this study, characterized above, are here amplified through the presentation of detailed material from the survey.

THE PHYSICAL MATCHING OF MEN WITH JOBS

The plant study was organized with the purpose of determining through rapid survey the extent to which men having any of a given series of disabilities could be employed. The types of physical defects are indicated in the form given above under head "Disabilities List." For example, beginning with the first item in the list, the investigator determined whether a man with one leg useless or amputated could perform the particular job which he was viewing in the plant. It was assumed that the man had no outstanding mental defect and no combination of physical disabilities, that he had no problem of transportation in reaching the plant on account of his disability, and that the requirements regarding apprenticeship, unionism, etc., had been satisfactorily met.

In other words, the survey was intended to show by rapid observation the extent to which any given physical disability would interfere with remunerative employment, all other conditions being assumed to be favorable.

The results from this study are not of the same nature as those reached through actual placement of handicapped workers. In practical placement of disabled persons at work, other factors than the physical matching of men with jobs must be considered. Practical placement would have proceeded too slowly for the purposes of the present survey and it would not have been possible to test conditions in a wide variety of plants.

The following summary affords an example of the way in which the circumstances and requirements of each job were described:

1. *Description of Plant.* This plant was the repair shop of a railroad system. There were 450 employees, 400 male and 50 female. Certain notes were made about welfare work in the plant, and the prospect for the employment of physically handicapped persons. Note was made of what appeared to be the characteristic or fundamental processes in the plant, and what were the allied or more superficial processes.

2. *Job Description.* For this illustration, the job of operating a locomotive turn table is chosen, this being a part of the work of receiving and storing, which is one of the "characteristic processes" of the plant. The following description is noted by the investigator: "The operator sits in a small house and operates a controller similar to those on street cars. Movement of the controller crank and shifting of a lever

regulates movement of the turn table. Job easily learned and not strenuous." This is not a complete description for the purpose of determining whether the job can be performed by persons with various types of handicap, as the investigators decided that from direct observation. The description is given as a memorandum chiefly to suggest the type of operations performed and the bodily positions of the worker.

3. *Job Analysis.* The requirements of the job with respect to motion, condition of work, training, etc., are amplified by checking on the form reproduced above, so as to furnish, in this case, the following information:

The operator sits most of the time but stands when shifting the lever. The work is light and the only strain is that of reaching, which is slight. A high degree of accuracy is not required and the necessary judgment is easily acquired. Good or fair sight and hearing are required. No apprenticeship is required, either inside or outside the plant. The task can be learned in one week. Eight hours of work are required and a half hour for lunch. During the lunch hour the man may be called on to work when locomotives are called out or brought in; but since the turning of an engine takes only a few minutes this does not interfere greatly with his lunch period. The pay is on the day rate, at 43 cents per hour.

4. *Physical Disabilities.* In the judgment of the investigators, this job could be performed by a man having any one of the following disabilities:

(1) One leg amputated or useless.
(2) One hand amputated or useless.
(3) Fingers of one hand amputated or useless.
(4) Back or neck ailment.
(5) Weak heart.
(6) Slight hernia.

On the basis of analyses of this kind, information was obtained from the study of industrial plants which may be summarized as follows:

TABLE II.—JOBS THAT MAY BE PERFORMED BY PHYSICALLY HANDICAPPED

Key number of plant.	Number employees in plant.			Number of jobs analyzed.	Names of jobs analyzed.
	Male.	Female.	Total.		
1	200	200	400	4	Pasting labels, inspecting cookies, coating cookies, trimming at wafer machine
2	600	20	620	4	Driving planttractor, nut tapper, bolt threader, core maker
3	595	5	600	4	Call clerk, turntable operator, time keeper, stationary engineer
4	40	10	50	2	Pulling bastings, pressing
5	225	225	450	4	Banding neck-ties, operating suspender machine, deductor, cutting, assembler, checker
6	325	325	650	6	Packing candy, dipping chocolates, placing bars on enrober, packing candy in glass jars, attending enrobers, wrapping candy bars
7	90	4	94	7	Assembler, metal japanner, scale weight tester, winder, testing apparatus, lathe operator, hand screw machine operator
8	420	180	600	8	Greasing irons, filing contacts, wrapping cords, curling iron assembler, inspecting flat-irons, assembling irons, attatching switch, setting up contacts
9	1,082	544	1,626	2	Annealing, assembling
10	200	30	230	6	Assembling, grinder, drill press operator, polisher, buffer, sorter
11	375	45	420	3	Crib keeper, core maker, pattern maker
12	500	12	512	3	Drill press operator, inspector, bench cleaner
13	390	60	450	2	Finishing, cutting covers
14	92		92	3	Winder, weaver, framer
15	540	60	600	5	Polisher, hanging hides up to dry, staking, oiling and glazing, wringing hides
16	100		100	4	Finisher, planer operator, cabinet maker, molding sticker
17	725	75	800	3	Spring tester, hand polisher, grinder, motor part assembler, drill press operator
18	180		180	2	Piano tuner, finisher
19	200	26	226	2	Cigar maker, cigar bander
20	600	400	1,000	1	Packing
21	1,450	400	1,850	8	Line inspecting, die setter, lumber man, body maker, feeder, seroll shear feeder, can tester, solder
22	250	400	650	7	Jar ring maker, lacquerer, header machine, jar ring inspector, shearer, operator, sorting and assembler, punch press operator
23	1,050	150	1,200	2	Paint tester, paint mixer
	10,229	3,171	13,400	92	

PERSONS IN TWENTY-THREE INDUSTRIAL PLANTS OF CHICAGO.

Number of workers on these jobs.	Number of employees in plant for each specific handicap.														
	Amputation or lack of use.							Sight.		Hearing.		Back or neck ailment.	Weak heart.	Lungs.	Hernia.
	One leg.	Two legs.	One arm.	Two arms.	One hand.	Two hands.	Fingers.	Blind.	Defective.	Deaf.	Defective.				
19	12	7	6		6		10			10	10	19	19		19
23	18	5	12		12		11	6	6	17	17	17	17	12	17
8	6	2	8		8		8				2	8	8	5	8
9	9									9	9	5	5		5
35	31						10	4	4	18	18	18	25	6	29
119	119						76			91	91	119	119		119
23	19	4			6		14			7	7	3	21	21	19
28	28						27	18	18	24	24	26	28	28	28
202	202		2		2					200	200	6			200
49	49						6	4	4	45	45	6	49	29	25
8	3	5					3						8	2	8
47	47				7		37			47	47	10	47	10	47
26	26		14		14	14				14			26	14	26
28	23	5								28			23		28
52	53		4		4		23		23	8	52		1		15
56	56						52		6	6	56		6		12
50	50						11	31	36	41	41	30	36	36	42
20	20						16	4		16	16	20	20	20	20
152	152						144			152	144		8		152
6	6						6			6	6		6	6	6
115	115		60		60		115			111	114	111	45	68	99
106	104	10	8		8		59			59	59	20	95	10	111
6	3						6			6	6	3			3
1,158	1,150	38	114		127	14	634	67	97	915	964	421	612	267	1,038

The jobs chosen for analysis were picked, with the expectation that they would offer some possibility of employment of physically disabled persons. Plant superintendents or foremen were consulted in arriving at conclusions. Such jobs as those of elevator operator, watchman and clerical work, to which disabled persons are usually assigned, were not included among those analyzed. While only 92 jobs were analyzed in relation to performance by persons with physical disabilities, it appeared to the investigators that many more of the hundreds of jobs observed could be done by the handicapped either under present arrangements, or with slight adaptation of machinery or organization. In the 92 jobs here listed, 1,158 employees were engaged, this being 9 per cent of the total number, 13,400 in all the plants.

The possibility in many instances of one job being performed by persons, among whom occur a variety of disabilities greatly increases the opportunity for employment of the physically handicapped. For example, at Plant 1 of the foregoing table, "pasting labels" might be done by persons having amputations of either one or both legs, or back or neck ailment, or weak heart or hernia. Seven persons were engaged at pasting labels in this plant. Multiplying 7 by the 5 types of handicaps, the total number of possibilities for disabled applicants is 35.

Table I has been constructed in such a way as to show this possibility while only 1,158 positions were represented in the jobs found possible of performance by the disabled (column 7), as many as 6,411 persons with the disabilities specified would be physically qualified to fill these positions (grand total of columns 8-22).

The proportionate relation between the various types of physical disability that were considered, based on the number of persons employed at each job capable of performance by a man with the given disability is shown by the following list derived from the foregoing table:

TABLE III—RELATION BETWEEN CERTAIN PHYSICAL DISABILITIES IN THE PERFORMANCE OF 92 SELECTED JOBS IN 23 INDUSTRIAL PLANTS.

Physical disability	*Number of employees possible.	Percentage of total job opportunities.
Amputation or lack of use of one leg	1,151	17.9
Amputation or lack of use of two legs	38	.6
Amputation or lack of use of one arm	114	1.6
Amputation or lack of use of two arms		
Amputation or lack of use of one hand	80	1.7
Amputation or lack of use of two hands	14	.2
Amputation or lack of use of fingers	634	10.
Blind	67	1.
Sight defective	97	1.5
Deaf	916	14.3
Hearing defective	964	15
Back or neck ailment	421	6.5
Weak heart	612	9.4
Lung disease	267	4.1
Hernia	1,038	16.2
Total	6,411	100

* As shown by preceding Table No. 1, for each job found possible of performance by a man with the given disability is listed the total number of employees engaged on that job in the plant.

The value of the results shown in Table II is limited by the fact that neither one of the investigators was a physician and by the additional circumstance that only limited attention could be given to the less apparent conditions of the work, as for example the likelihood of exhaustion or excitement at a job noted as possible of performance by persons with weak hearts. This limitation is important especially in connection with disabilities related to organic diseases.

CONDITIONS OF EMPLOYMENT OTHER THAN PHYSICAL FITNESS FOR JOB

An imaginary exclusion of all other considerations than that of a single disability as affecting the performance of a given job was necessary in arriving at any comparison of industrial opportunities in a series of plants. When this imaginary situation is compared with the conditions of practical placement, however, the outlook is very different.

The prospect for the physically handicapped in each of the 23 plants studied was noted by the investigators, as shown in the illustration above. In some instances, where few disabled persons were being employed, the plant superintendent nevertheless showed a receptive attitude. Further "salesmanship" of the idea of industrial rehabilitation, when the present law is put in operation, may be expected to change the situation radically. This prospect of increasing the number of industrial opportunities for the disabled through educational effort, alone, has seemed to justify the foregoing analysis of jobs on the assumption that other obstacles than the fitness of the man for the job will be removed. The considerations other than physical fitness of man for job may be summarized as follows:

1. *Attitudes of Employers.*—The outlook for employment of physically handicapped persons was discussed with officials of each of the 23 firms visited. The plan of the Rehabilitation Law, for non-charitable employment of the disabled alongside the ablebodied, was explained. Their attitudes toward cooperation in the plan may be summarized as follows:

Very favorable, 12.
Moderately favorable, 9.
Unfavorable, 2.

2. *Attractiveness of Employment.*—Jobs which offered opportunities for persons with various types of disability sometimes were found to be performed in surroundings which distinctly limited the group of applicants to be recommended to them. For example, in a leather goods plant employing 600 men and women, 15 of whom were physically disabled, and having many jobs that could be performed by disabled persons, the investigators made the following note:

"Several of the jobs, especially in the hide house and the tanning room, are disagreeable in the surroundings and are for the most part filled by the older and lower classes of workers, those that cannot stand

the pace in other factories. There are no openings for high grade skilled workers with physical disabilities."

3. *Increasing the Hazard of Employment.*—The extent to which the employment of a physically disabled person at a given job might increase the likelihood of injury to himself or to fellow workmen was not noted in the job analysis, but only those jobs were listed as possible of performance by disabled persons in which there was no evident likelihood of increasing the risk of injury. The representatives of five of the 23 firms, with an employed force of 9,120, said they considered the employment of handicapped workers would increase the number of injuries. Two of these firms decline to employ any disabled persons and, in case of the other three, handicapped workers are taken only in certain departments. They said that they saw a positive obstacle to the employment of disabled persons in the compensation rule, whereby the employer must pay for total disability, in case a man with a disability receives a second injury which, taken with the first, constitutes total disability.

4. *Relation to Compensation Act.*—The foregoing observation shows a direct relation of the Compensation Act to conditions observed in these 23 plants. Another observation of this type made by the investigators is that the representatives of these firms in some instances considered that payment of compensation award to an injured employee discharged their responsibility completely in relation to him. Their viewpoint was that of self-justification. This viewpoint cannot, however be said to be representative of the employers interviewed. The study shows that some concerns do not employ disabled persons in proportion to the number of ablebodied whom they injure, but further investigation would be required to determine the extent to which this characterizes other concerns.

5. *Trade Unionism.*—Approximately 16 per cent of the number of employees in the jobs analyzed in this study were unionized at these plants. The extent to which work of similar nature in the community and State may be unionized is not known. Some inquiry was made regarding union relationships and the attitudes of trade union leaders toward the employment of physically handicapped persons, but no general conclusions have been reached. The attitude of unions towards their disabled members is reflected in the study of "Trade Union Benefit Systems," reported by the Illinois Health Insurance Commission in 1919 (pp. 550-551). The provisions they have made, however, refer to sick benefits, funeral expenses and life insurance. They are not concerned with rehabilitation. Reestablishment of persons in industry appears to be a recent subject in the discussion of unions, upon which only general, sympathetic expressions have been given. The introduction of disabled workers into unionized trades will affect regulations and practices in which heretofore only the ablebodied workmen have been considered. As an example the following quotation is taken from a paper prepared by Mr. C. Van Riper, supplementing the present survey:

The next thing to be explained was the "exclusiveness" of certain local unions, and the ———— Workers Union was mentioned as an example. Here a very strong local has been built up. Wages are high, it is a choice location, and the work is pleasant. Naturally every one would like to gain entrance to this local, and the present members simply and frankly wish to keep their good fortune for themselves. Their answer to a man's plea for admission, no matter who the person was, would most likely be to go and help build up some weaker branch where his presence was needed and wanted.

Then, again, in the building trades one finds a seasonal occupation. It is up to the men to make just as much as possible in the time at their disposal, and a limitation-of-numbers policy makes the wages high for those admitted. Hence in some of these locals a whole man might find as much difficulty securing entrance as one who was handicapped.

From this study there appears to be great need for educational effort among some labor groups, such as will follow the adoption of the State program of rehabilitation provided in the present law. The obstacles to employment of the physically handicapped, as far as trades unions are concerned, are to be located and overcome in much the same way as opposition in dealing with some employers, namely, through constant effort on behalf of individual cases for whom employment is sought. Generalizations about the situation are of little use.

6. *Foreign and Illiterate Groups.*—A number of specific observations regarding racial lines in the employment of these 23 concerns have been made, and these situations compared with the grouping of foreigners in other industries, large and small. Hot, dirty, heavy and disagreeable work is frequently done by foreigners of more or less distinct racial groups. This condition is explained not so much by racial characteristics or American prejudices towards them, as by the tendency toward illiteracy and poor skill in certain racial groups. Frequently these racial groups have little opportunity to improve their living and working conditions or to acquire skill. The educated foreigners frequently follow a skilled trade. These observations from the industrial standpoint emphasize the need of fundamental education for many immigrants and for the illiterate, including the learning of English, in the educational phase of the rehabilitation program. The unskilled and poorly educated worker, when disabled through accident or disease, is more apt to present a problem of rehabilitation which the community must undertake than the better educated and skilled.

7. *Light Work and Some of Its Problems.*—The usual types of low skilled occupation in which physically handicapped persons are to be found in numbers, are various types of assembly, of punch press operation, of polishing, and salvage of used materials. Jobs of the type indicated are usually designated "light work," are easily taught, are sedentary, and involve little risk in respect to loss of materials, or injury to the workman or his fellows. These jobs exist in nearly all large manufacturing establishments. In them severely handicapped persons, as for example the blind, frequently acquire greater skill and speed than the ablebodied. The work is often monotonous and sometimes

unattractive for the ablebodied. These observations suggest problems for further study when the placement of physically handicapped persons is undertaken under the present law. One problem that has appeared in the present study is the temporary character of work of this nature in job industries, as reflected in the following comment by the investigators:

> The company, while turning out great quantities of product, change the jobs from time to time as they do big job work according to specifications. The guide taking us through this plant pointed out the difficulty resulting from their constantly changing jobs. In such a large plant it might be possible to find some other job the handicapped person could do, but the slight extra administrative effort is not likely to be expended.

Another problem is represented in the frequent reduction of opportunities for employment through the installation of mechanical inventions. Examples are the introduction of automatic buffing machines and the invention of a process of casting together certain small clock parts which formerly required assembly by hand. Another problem which is to be foreseen in the placement of low-skilled, disabled workers in these types of employment is represented in the employment of women. When a job which is known to be "light work" becomes sufficient standardized and requires a number of workers, the concern is likely to consider the hiring of women. An example is switchboard operating, at which women are now used almost universally, the problem is suggested by the following illustration:

> A carpenter in a small town met with an accident which resulted in amputation of one leg at the hip. About this time, the telephone was being introduced into rural districts. He saw the opportunity and invested some money in the new company, having the switchboard put into his house. With the aid of his family, he was able to take care of the job night and day. He maintains a good standard of living and has saved money.

Girls were found operating punch presses in four of the 23 plants visited. In one plant they were used as operators of hand screw machines which require dexterity of hand and arm and steady attention to the machine, but little skill or judgment. The employment manager explained that the work required but a few days to learn and that female help turned out more work and a product of better quality. In one plant 90 per cent of the workers on jobs that were selected for analysis in relation to physical handicap, were women, although only 65 per cent of the employed force were females. For the study of the whole, 43 per cent of the workers on jobs classed as suitable for handicapped persons were females.

8. *Large versus Small Plants.*—In studying the range of industrial opportunities for the physically handicapped, as represented in the selection of the 23 plants visited, an outstanding observation is that of the great variety in number of persons employed by concerns within a single industry. In the printing business in Chicago for example,*

* United States Census of Manufacturers for Illinois, 1914, p. 27.

the greatest number of workers, 22 per cent, are engaged in plants which employ between 100 and 250 persons. One establishment employs more than 1,000 persons. But there are more than 1,200 places that employ five persons or less, and 61 per cent of the plants in the city employ fewer than 21 persons.

The circumstances in large and in small plants must therefore be compared, in the adoption of any policy of training and placement of physically handicapped persons. Observations in studying large and small plants have been compared, and an attempt made to characterize the differences as they affect the employment of physically handicapped persons. It is understood that the placement of anyone in a position is an individual matter and that in handling a given case, personal qualities such as mentality and training would be more important to consider than such relationships as are here summarized. It was probably the man of more than average capacity and ambition whom one of the field workers had in mind in expressing the following judgment:

> Where the disability necessitates transfer from the man's established occupation, the best protection against down-grading through routinized assembly work or machine operation and probable loss of job due to changing industrial processes, and through reduction of wages with increasing age, is his entrance into small shop work.

The examination of advantages and disadvantages of large and small plants for the employment of physically handicapped persons has not been carried to sufficient extent to warrant any conclusive recommendations. The following list is presented chiefly for the purpose of calling attention to the problem:

TABLE IV—LARGE VERSUS SMALL PLANTS—ADVANTAGES AND DISADVANTAGES FROM THE STANDPOINT OF PHYSICALLY HANDICAPPED EMPLOYEES

LARGE PLANT

A. *Advantages:*

Subdivision of labor tends to group the light work.
Greater opportunity for change within plant.
Systematic training, in case school or apprenticeship system has been established.
More expert management, to discover handicap jobs.
Easier to have a man's material brought to him.
Closer medical supervision, so that heart, hernia, and lung handicaps for example are less exposed to increased hazard on account of transfer.
Large plant more likely to have personnel department, for expert supervision of relations with employers.
Possible for man of average or low intelligence to become a specialist at repetitive processes.
More safety precautions.

B. *Disadvantages:*

Routinized, poor chance to learn more than one job.
Man's physical condition may be endangered by transfer to job for which he is not fitted.
Man not so likely to receive personal attention of management.
The worker usually does not acquire much trade training for subsequent employment.
Tendency to confusion of the worker, and loss of independent feeling of job. Large plant not so likely to be near to man's home.
Greater competition with female labor.
Greater competition with machines on repetitive processes.

SMALL PLANT

A. *Advantages:*

Greater possibility of adaptation of job to physical handicap, as a result of more personal consideration from the management.

Work more likely to involve managerial functions.

Man may start directly as manager or contractor.

Less likelihood of displacement through the rough employment of women.

Greater opportunity to learn as much of the trade as physical disability will permit. This general trade knowledge, combined with a certain amount of skill, is an important asset in securing subsequent positions.

Small plant likely to be located near residence of handicapped person.

More immediate attention on part of the management.

B. *Disadvantages:*

Small firm more likely to go out of business.

Necessity of change from job to job within the plant may prevent employment of disabled persons.

Danger of taking a chance on helping with unanticipated task, at which he may be injured.

Disabled person's peculiarities are brought directly to the attention of the management, and this may make it more difficult for him to hold his position. Small firm less able to take increased risk of employing disabled persons.

APPENDIX F-2

EIGHTY-TWO DISABLED PERSONS EMPLOYED IN ELEVEN INDUSTRIAL PLANTS OF CHICAGO

Information has been secured concerning 82 employees of plants, which have been studied in the present survey. The number of disabled employees reported by each firm is shown in the following table:

TABLE I—INDUSTRIAL CONCERNS AND NUMBER OF DISABLED EMPLOYEES FOR WHOM INDIVIDUAL RECORDS WERE MADE.

Key No.	Kind of industry.	Total number of employees.	Number of disabled employees.
1	Leather goods	600	9
2	Car building	620	21
3	Laboratory apparatus	94	10
4	Plumbing fixtures	420	4
5	Reed and willow furniture	92	4
6	Metal caps for glass jars	650	8
7	Phonographs	800	2
8	Small machine castings	512	7
9	Men's furnishings	500	7
10	Wholesale groceries	1,000	9
11	Paints	1,200	1
	Total	6,488	82

Interest attaches to this study partly from the fact that these cases represent 1.3 per cent of the total employed force of these plants, this being near the average proportion of serious disabilities in the population. Some of the disabilities in this group, however, as shown in Table II, do not constitute serious handicaps.

The form on which each case was reported is as follows:

Plant Reported by Date 1920
Name of employee
Sex Age Education
Name of disability
Artificial appliances used
Years in employ this firm Years ago disabled
Disabled while in employ this firm?
Job now
Job before handicap
Wages now per week $ No. weeks spent retraining

Disabilities and use of artificial appliances among this group are shown by the following table:

TABLE II—DISABILITIES AND PROSTHETIC APPLIANCES.

Location or nature of disability.	Total number of persons.	Per cent of persons.	Amputations.	Number of prostheses.
Lower limbs	26	31.7	7	7
One foot	7	8.6	3	3
One arm	4	4.9	3	3
Hand	17	20.7	6	----
Spine	3	3.7	----	----
Totally blind	4	4.8	----	----
Partially blind and eye trouble	10	12.1	----	----
Deaf and dumb	4	4.9	----	----
Other disabilities	7	8.6	----	----
Total	82	100.0	29	13

Comparing this group with the 62 cases reported by public employment bureaus, it appears that in case of amputations of feet or lower limbs, all are provided with artificial appliances, whereas among those coming to public employment bureaus the corresponding proportion was 43 per cent.

The wage effects of persons remaining in the service of an employer in whose plant the disability occurred is reflected in the following table:

TABLE III—PERSONS DISABLED IN SERVICE OF PRESENT EMPLOYERS OR OTHERWISE.

	Number.	Per cent of those reporting.	Average wage per week.
Disabled in service of present employers	20	26	$30.53
Disabled, not in service of present employers	56	74	$29.32

From this it appears that one who is working for a concern in whose employ his disability occurred has little advantage over one whose disability occurred otherwise. It is probable, however, that the cases here reported represent permanent positions, and the inclusion of handicapped persons engaged in temporary work might have resulted in a much lower average wage comparatively for those not in the employ of concerns in whose service their disabilities were received.

That the wage level is fairly high in this group, is shown by the fact that 54, or 66 per cent, of these employees were receiving wages of $25 or above.*

Few of these men and women graded low in respect to education, most of them having reached the sixth or eighth grade, and nine of them having education above grammar school.

CHANGE OF OCCUPATION

Twenty-three of these cases, or 28 per cent, are reported as having changed their occupations at the time of becoming disabled. The extent to which this change was for the better or for the worse is indicated by the nature of the job or the wages paid as follows:

Seven Women:
Ages: Six over 34 years.
Wages: Ranging from $14 to $21; average, $17.50.
Disabilities: Four hip trouble; 2 blind; 1 stiff elbow.
Period of employment with present firms: Two for 10 years; 1 for 22 years.
Nature of work: Clerical and factory work.
Only 1 disabled in employ of present firm.

Twenty of the Older Men:
Ages: Fifty years or over.
Period of employment: Eight for 25 or more years; 15 for 13 or more years; average, 20 years.
Twelve had received disabilities in employ of present firms.

RETRAINING

Seven men had received or were receiving training for new work on account of disability. Of these, 2 were soldiers, who were receiving training for 4 months as pattern apprentices. One had been a car carpenter and the other a core maker. The circumstances of retraining of the remaining 5 are indicated by the following table:

TABLE IV—RETRAINING ON ACCOUNT OF DISABILITY.

Age.	Physical handicap.	Old job.	New job.	Period of retraining.	New wage per week.
60	Amputation left leg	Stationary engineer	Cook grinder on single spindle	2 weeks.	$42.00
23	Three first fingers right hand off, 1st and 2d joint	Machine work	Assembling instruments	32 weeks	28.80
44	Left hand crippled	White brass machine operator	Assistant in shipping room	4 weeks	28.60
36	Right eye much weakened	Watchmaker	Instrument making	4 weeks	36.00
27	Left arm amputated	Stock work	Bookkeeping	6 months.	26.00

* Seven of the 82 workers, or 9 per cent, had never worked for any other employer.

APPENDIX F-3

SIXTY-TWO PHYSICALLY HANDICAPPED PERSONS APPLYING AT FREE EMPLOYMENT BUREAUS

(All applicants between March 1 and December 1, 1920.)

The cases included in this study are valuable for representation of the service now being rendered by free employment bureaus in connection with the rehabilitation of physically handicapped persons.

The information has been recorded on the enumeration card (for form see page 493). The number of case records received and the employment offices represented are as follows:

Chicago	47
Peoria	8
Decatur	5
Danville	2
Total	62

The lack of cases from the remaining 7 free employment offices in the State may be taken as an indication that few physicially handicapped persons applied for placement during this period, as the superintendents of all bureaus were supplied with report cards, and they expressed a desire to cooperate by furnishing information regarding any physically handicapped persons who might apply. The following note from the superintendent of the Peoria bureau indicates that records could not be expected from downstate offices for all physically handicapped applicants. It shows also the wandering habits of some of these men.

> Several applicants who called on us for assistance during the past month were physically disabled, but as they did not contemplate stopping long in Peoria they refused to fill out an application blank. We also find some people who are reluctant about discussing their injuries.

The small number of disabled persons applying during this period of nine months may be considered as an indication, to a certain extent, that during this period of excess demand for labor handicapped persons had little difficulty in securing jobs. It may result also partly from the circumstance that the free employment bureaus, with the exception of Chicago, which has a special placement officer for disabled and aged persons, were not in a position to advertise special service in securing jobs, and for that reason only the ablebodied were inclined to make application.

These results are of value chiefly as showing the relation of the free employment bureau to reestablishment of the physically handicapped

before the Rehabilitation Act has been put in operation. These 62 men are only an extremely small and select group of the physically handicapped who may need rehabilitation.

The disabilities and use of prosthetic appliances represented in this study are shown in the following table:

TABLE I—DISABILITIES AND USE OF ARTIFICIAL LIMBS OR OTHER PROSTHETIC APPLIANCES.

Location or nature of disability.	Total number of persons.	Per cent of persons.	Amputations.	Number of prostheses.
*Lower limb (one)	12	19.3	7	6
Both lower limbs	7	11.2	4	2
One foot	3	7.8	2	----
Both feet	1	1.6	1	----
*One arm	26	41.9	23	6
Both arms	1	1.6	----	----
Hand	5	8.0	5	----
Spine	2	3.2	----	----
Blind	2	3.2	----	----
Other disabilities	3	4.8	----	----
	62	99.8	42	14

* One soldier.

Considering the first four items in this table it appears that 43 per cent of those having amputations of one or both feet or legs were without artificial feet or limbs. Comparing this group with similar amputation cases among the 82 employed persons whose records are presented in Appendix *F-2,* it appears that the employed workers are better supplied with artificial limbs. The ten persons with similar amputations have them.

AGE AND SOCIAL CONDITION

All of these 62 applicants were males. Their age distribution is shown as follows:

TABLE II—AGES OF 62 PHYSICALLY HANDICAPPED PERSONS WHO APPLIED FOR EMPLOYMENT.

Age group.	Number.	Per cent.
15-19 years	10	16
20-29 years	23	37
30-39 years	9	15
40-49 years	10	16
50-59 years	7	11
60-69 years	3	5
	62	100

While only 12 per cent of those under 30 years were married, about one-half of those in the higher age group were reported as being married.

Fourteen were reported as having been born in foreign countries, all except two of them having been in the United States 10 years or longer. All spoke English.

INDUSTRIAL AND WAR INJURIES

Number:	Twenty-six, or 43 per cent of the 62 cases.
Ages:	Three-fourths over 30 years old. (The younger men are freer to move about, have fewer dependents, get better jobs, and their injuries usually have occurred since the passage of the Compensation Act.)
Compensation:	Fourteen received compensation, varying from $1,200 to $3,000.
Soldiers:	Four received from $12.50 to $100 a month from Federal Government.

EDUCATION AND SKILL

On an average, these men had received education as high as the seventh grade. The value of the information on this point is doubtful, however, and other circumstances shown by the records would indicate that most of the men had not reached the seventh grade.

Eighteen of the men, or 29 per cent, were common laborers both before and following disability. Habits of work were reported in 29 cases and of these 72 per cent appear to have been steady workers both before and after disability, the remaining group having changed from steady to casual labor at the time of becoming handicapped.

WAGES AND ECONOMIC CONDITION

Approximately one-third had no occupation, and were not referred to a job; approximately one-third were doing low-skilled work (watchmen, switch tenders, odd jobs, etc.) and the remaining one-third were classed as semi-skilled and clerical—(drill press operators, elevator operators, janitors, one inspector).

Information was given regarding wages in 25 cases. For these men the average wage before disability was $19.24 a week and after disability $18.62. The decrease in earning power is much greater than these figures indicate, for the reason that in most instances the war-time rise in wages had occurred since the men had become disabled. The degree of self-support is shown for 42 cases in the following table:

TABLE III—SELF SUPPORT, 42 CASES

Dependent	4 per cent
Partially self-supporting	12 per cent
Self-supporting	59 per cent
Supporting others	23 per cent

More than half of the men who reported themselves as self-supporting were under 30 years of age.

SUBSEQUENT HISTORY OF EMPLOYMENT

On December 15 the employment status of the 47 Chicago cases represented in this study was as follows:

At work	21
Unemployed	17
Never assigned to jobs	8
In business for self	1

The cause of unemployment in the 17 cases noted is to be seen partly in the industrial situation. The recent reduction in demand, and increase in supply, of labor is shown by the following table:

TABLE IV—MONTHLY RATIO OF DEMAND FOR WORKMEN MADE AT ILLINOIS FREE EMPLOYMENT BUREAUS TO SUPPLY OF APPLICANTS FOR JOBS.

(Number of applicants registered to 100 positions open.)

A. Total by months, year 1920:

February	73	July	99
March	78	August	92
April	80	September	96
May	81	October	103
June	84	November	128

B. Ratio by industries, year 1920:

Industry.	August.	September.	October.	November.
Agricultural	77.5	133.2	103.2	99.2
Boys work	120.6	95.8	132.0	205.0
Building and construction	108.0	63.7	104.3	168.4
Clerical	91.4	114.1	151.4	203.0
Domestic and personal service hotel and restaurant	79.3	75.1	80.7	100.9
Factory work	111.0	83.9	115.2	144.6
Metals and machinery	75.9	142.6	110.4	236.0
Transportation and public utilities	195.0	203.9	180.1	209.9
Wholesale and trade	120.1	153.4	259.9	
Woodworking and furniture	56.0	89.5		
Miscellaneous	93.9	132.2	143.8	210.8
Common labor	88.9	80.0	92.3	109.3
Casual labor	99.9	97.7	98.7	102.3
Total	92.0	96.3	102.8	127.9

This unusual amount of unemployment among the physically handicapped is due also to the circumstance that most of the men considered in this study were placed at temporary jobs, and with the restriction of output they were among the first to be laid off. Whether the situation in this respect among the physically handicapped is identical with that among the ablebodied cannot be determined from the records of the employment office but it is believed by placement officers that the ablebodied who were placed in temporary jobs have been laid off in about the same proportion as the disabled.

The remedy for unemployment among the physically handicapped on account of temporary or casual work, apparently lies in the direction of more thorough examination of their condition and needs at the time of application, vocational training in some instances as provided in the Rehabilitation Act, and greater attention to placement and follow-up service.

APPENDIX F-4

REEMPLOYMENT OF THE MORE SERIOUSLY INJURED PERSONS INCLUDED UNDER THE COMPENSATION ACT

To obtain more exact information regarding the circumstances of reemployment of persons who are seriously injured at work, a study has

been made of 2,089 cases taken from the records of the State Industrial Commission for the year 1919.

It is the impression of officers of the Industrial Commission that nearly all of those who are temporarily injured return to their previous jobs. Regarding the more seriously injured, they can make no estimate. In this classification of "the more seriously injured" are included for the year 1919 those grouped under the following terms: total disability, permanent specific loss, and permanent partial disability. These number 5,021, or 14 per cent of the entire number of cases coming before the Industrial Commission during the year 1919.

For the present inquiry, 2,670 cases were selected from among those whose compensation amounted to $300* or more; and from those with this compensation were chosen the cases in which physical disabilities were apparently the more serious.

For each of these 2,670 cases, an inquiry was mailed to the employing concern asking for information regarding employment subsequent to injury, to be returned on the following form:

1. Reemployed at _____
   Fill in "same job" or description of new job.
2. Continued on our pay-roll until_____
   "Now" or date when left.
3. Wages(increased)
   (decreased)(underscore) by_____per cent since injury.
   (improved)
4. Conditions of work and chance for advancement(same)(underscore)
   (declined)
5. _____weeks spent(at this plant)in retraining for new job.
   (outside)

Additional comment:

To these 2,670 inquiries, 2,089 replies were received, which is 78 per cent of the number of questionnaires sent.

In all cases there was an interval of at least seven months since the injury was incurred, as the first inquiries were mailed on July 15, 1920. This period was sufficient for nearly all persons concerned to have returned to work where they had been employed, providing relations with their employers were harmonious and suitable work was offered. For persons injured in January, 1919, nineteen months had elapsed before the inquiry was made. But as far as reemployment is concerned, the interval between injury and date of inquiry seemed to make no difference, according to the returns received.

In some cases employers went to great length to find out and report the circumstances of reemployment after injury, even when the men had

* A few inquiries were sent regarding persons whose compensation amounted to less than $300 but more than $250.

gone to other plants. A number of letters were received describing the difficulties of making proper adjustment following injury. Several employers expressed interest in the adoption of a State program for persons injured in industry.

In examining the results of this inquiry it is to be borne in mind that they represent exclusively the statements of employers.

The age distribution of these 2,089 seriously injured persons and whether or not they were reemployed, are shown by the following table:

TABLE I—AGES OF INJURED PERSONS AND WHETHER OR NOT REEMPLOYED

Age.	Number of persons.	Per cent of persons.	Number re-employed.	Number not re-employed.
15-19	177	8	177	60
20-29	467	22	328	139
30-39	524	25	366	158
40-49	417	20	279	138
50-59	228	11	151	77
60-69	97	5	51	46
70-79	15	1	8	7
Not given	164	8	89	75
	2,089	100	1,389	700

The age grouping of these cases corresponds fairly evenly with that of the entire group of 5,021 cases from which they were selected. In this table is shown a tendency, above the average, to reemploy injured persons between the ages of 20 and 40, and below the average not to reemploy those between the ages of 60 and 80.

Two-thirds of those included in this inquiry appear to have been reemployed subsequent to injury.

The following table shows the number of reemployed or not re-employed according to the amount of compensation allowance:

TABLE II—AMOUNT OF COMPENSATION AND REEMPLOYMENT.

Amount of compensation.	Re-employed.	Per cent.	Not re-employed.	Per cent.
$250.00 to $500.00	690	71	286	29
$501.00 to $750.00	297	65	162	35
$751.00 to $1,000.00	133	58	97	42
$1,001.00 to $1,250.00	103	72	39	28
$1,251.00 to $1,500.00	78	70	34	30
$1,501.00 to $1,750.00	36	68	17	32
$1,751.00 to $2,000.00	18	53	16	47
$2,001.00 and over	24	37	40	63
Not given	10	53	9	47
Total	1,389	Av. 66	700	Av. 33

From this it appears that there is a marked tendency for persons receiving more than $1,750 compensation not to be reemployed by the firms in whose service they were injured. This is shown by the variation

in the column of percentages from the average of the column. This may be due to the disinclination of a man receiving a large compensation award to return to work, or to the seriousness of his injury or to the antipathy of the employer occasioned in the process of agreement upon the allowance.

The outlook for remunerative employment, as indicated by answers to the fourth question in the schedule, is shown by the following table:

TABLE III—CONDITIONS OF WORK AND CHANCES FOR ADVANCEMENT.

Condition.	Those re-employed.	Per cent of those reported.	Those not re-employed.	Per cent of those reported.
Same	896	77	34	47
Increased	192	17	14	19
Decreased	71	6	25	34
Not given	230		627	
Total	1,389	100	700	100

With respect to those reemployed the statement would be more accurate if it were based on the combined judgment of employment managers and physicians. These replies were made at a period of maximum demand for labor and to that extent they may be discounted for over-statement of a man's future chances. Even under these circumstances, however, the replies on this point are noteworthy for their indication of:

1. The relatively small proportion of those who were reemployed whose industrial opportunities were diminished.
2. The relatively large proportion among the few cases reported of those not reemployed whose opportunities were diminished.

A similar tendency regarding prospects subsequent to injury is shown in the amount of wages reported in the following table:

TABLE IV—WAGES AFTER THE INJURY OF THOSE REEMPLOYED AND THOSE NOT REEMPLOYED.

Wages.	Those re-employed.	Per cent of those given.	Those not re-employed.	Per cent of those given.
Same	420	36	11	25
Increased	690	58	28	64
Decreased	72	6	5	11
Not given	207		656	
Total	1,389	100	700	100

The greater proportion of those showing increase of wages in Table IV, as compared with those showing increase in prospects for advancement in Table III, may be assumed to be due to the constantly increasing wage scale at the time those replies were made.

The reasons for failure to reemploy the injured persons as given in these replies from employing concerns are as follows:

TABLE V—REASONS EMPLOYERS GAVE FOR NOT REEMPLOYING SERIOUSLY INJURED PERSONS

Never applied after accident	279
Not recovered from accident	65
Went to other employer	35
Job upon which injured was temporary	26
Refused job on which injured	22
Went into business for himself	23
Refused new job	10
Dead	9
Physical handicap such could not reemploy	6
Undesirable mental attitude	3
Shirker	2
Reason not given	220
Total	700

Whether those reemployed were taken back into the same jobs or were put at different work is shown by the following table:

TABLE VI—WHETHER REEMPLOYED AT SAME OR AT DIFFERENT JOB.

	Number.	Per cent of those answering.
Reemployed same job	1,031	77
Reemployed other job	302	23
No indication in reply	56	
Total	1,389	100

It is likely that of the 302 reported as being put at different jobs after injury, some were so assigned temporarily during period of recuperation.

The industries in which 2,089 seriously injured persons under inquiry were engaged are as follows:

TABLE VII—INDUSTRIES IN WHICH THE MORE SERIOUSLY INJURED WERE ENGAGED.

	Re-employed.	Not re-employed.
1. Agricultural implements	75	16
2. Automobiles, inc. bodies and parts, also accessories	16	4
3. Boxes, fancy and paper		1
4. Bread and other bakery products	10	3
5. Brick, tile, pottery and other clay products	11	2
6. Canning and preserving		2
7. Carriage and wagons and materials	3	3
8. Cars and general shop construction and repairs by steam railway companies	2	1
9. Cars, steam railroad, not including operations of railroad	21	9
10. Chemicals	4	2
11. Clocks and watches, including cases and materials	4	2
12. Clothing, men's, including shirts	1	1
13. Clothing, women's	1	1
14. Confectionery	11	5
15. Construction and building	37	34
16. Copper, tin and sheet iron products	24	11
17. Electrical machinery, apparatus and supplies, telephone, telegraph, etc	45	13
18. Flour-mill and grist-mill products, elevators, grains	24	23
19. Foundry and machine shop products	188	83
20. Furniture and refrigerators	18	8
21. Gas and electric fixtures and lamps and reflectors	1	
22. Glass	8	3
23. Hosiery and knit goods	1	
24. Iron and steel, steel works and rolling mills	65	36

TABLE VII—Concluded.

	Re-employed.	Not re-employed.
25. Leather goods	7	3
26. Leather, tanned, curried and finished	7	1
27. Liquors, malt, and breweries	7	3
28. Lumber and timber products	28	12
29. Mining	339	166
30. Musical instruments, pianos and organs and materials	14	8
31. Oil, refining and pipe line	26	10
32. Paints and varnishes	5	3
33. Paper, felt and pulp works	6	3
34. Printing and publishing	21	6
35. Sand, cement, quarrying, etc	13	4
36. Slaughtering and meat packing	45	26
37. Smelting and refining, zinc, aluminum, iron and lead	14	8
38. Soap	4	1
39. Stoves and furnaces, including gas and oil stoves	9	5
40. Transfer and storage	19	12
41. Transportation, railroad, etc	62	20
42. Wholesale and commission merchants, mail order	13	6
43. Unclassified	180	140
Total	1,389	700

Whether or not in any industry there is a strong likelihood of an injured person's returning to work with his former employer, is shown by comparison for any industry with the average ratio for the entire group, namely, two persons reemployed for everyone not reemployed.

The attitude of the specific firm, however, is in some instances more important than the industrial classification given in the foregoing table. Some large concerns reengage nearly all employees injured in their service, and some take back comparatively few.

Taking specific occupations, as far as they can be determined from the records of the Industrial Commission, an approximate statement of relationship between skilled and unskilled work is here made. It was necessary to guess the meaning of some occupational designations as, for example, "machinist," which may indicate any grade of work from that of a routine machine operator to that of a master machinist. The classification here made has been submitted for correction to an expert in job analysis, to an employer in the milling business, and two members of the State Industrial Commission with varied industrial experience. For 1,935 persons who could be classified according to this method, the following results were given:

TABLE VIII—DEGREE OF SKILL

Degree of skill.	Those reemployed.		Those not reemployed.	
	Number.	Per cent.	Number.	Per cent.
Skilled	630	49	352	55
Semiskilled	187	14	69	11
Unskilled	476	37	219	34
Total	1,295	100	640	100

The table indicates that the degree of skill can scarcely have had much effect upon the reemployment of those seriously injured persons.

The question as to retraining disabled men for service in the plant was answered in the affirmative by 36 firms. To these employers was sent an inquiry as to the character of training given. Twenty-four replies were received, and from these it appears that only ten of the firms had carried on the retraining according to any plan. These ten replies are here summarized. These replies altogether related to 63 employees:

		Yes.	No.
1.	Was man retrained by special person or departments	4	6
2.	Was he retrained in the department where it was expected he would be reemployed	6	4
3.	Did retraining consist in a course of instruction fitting for a new type of work	8	2
4.	Did it include operating a machine or contrivance different than the one previously operated	8	2
5.	Did he start the job at full production	1	9

From replies received, it appears that the retraining given was in most instances casual, the two notable exceptions being a large enameling concern having an exceptionally well arranged medical department, and an electrical concern having a well developed apprenticeship school.

APPENDIX F-5

INDUSTRIAL ACCIDENTS IN ILLINOIS IN RELATION TO PHYSICAL HANDICAP

A. Compensation Cases

Fifty-five per cent of the number of employees in gainful occupations in Illinois are covered by the Compensation Act, either in its compulsory or in its elective provisions.*

In the following series of tables and charts, parts of the statistical report of the State Industrial Commission for the calendar year 1919 are presented.

Except where otherwise stated, only those classes are considered in the summaries which include the more serious disabilities. These groups, and the number in each for the year 1919, are as follows:

* "Comparison of the Compensation Acts of the United States and Canada up to January 1, 1920," Carl Hookstadt, Bureau of Labor Statistics, U. S. Department of Labor, Bull. 275, p. 31.

TABLE I—CLASSIFICATION OF THE MORE SERIOUS INJURIES UNDER THE COMPENSATION ACT, FOR 1919.

	Male.	Female.	Total.
Total disability	25	2	27
Permanent specific loss	4,609	264	4,873
Permanent partial disability	120	1	121
Total	4,754	267	5,021

The total of these groups, 5,021, constitutes 14 per cent of the total number of compensation cases when deaths, disfigurements and temporary disabilities are included, namely, 36,533.

TABLE 2—AVERAGE OF COMPENSATION AND MEDICAL COST OF THE VARIOUS TYPES OF DISABILITY.

	Cost.	Number of accidents.
Permanent total disability	$9,334	27
Death	3,012	535
Permanent partial disability	861	121
Specific loss	544	4,873
Temporary partial disability	279	78
Disfigurement	196	813
Temporary total disability	62	32,042
Average	$177	Total 38,042

Derived from Table II, of the report of the Industrial Commission.

TABLE 3—SEX AND AGE OF THE MORE SERIOUSLY INJURED.

Age.	Male.	Female.	Total.	Per cent.
Under 16 years	11	1	12	.3
16 to 20	598	93	691	14.3
21 to 25	619	58	677	14.1
26 to 30	617	20	637	13.2
31 to 35	641	20	661	13.7
36 to 40	674	18	692	14.4
41 to 45	389	8	397	8.2
46 to 50	383	9	392	8.1
51 to 55	333	2	335	6.9
56 to 60	171	2	173	3.6
Over 60	154	3	157	3.2
Total	4,590	234	4,824	100.0

Derived from Table 9 of the report of the Industrial Commission.

TABLE 4—PARTS OF THE BODY INJURED.

(38,289 injuries including the lighter forms of disability)

Part of body.	Number of cases.	Per cent.	Chief subdivision.	Per cent of cases in subdivision.
Upper extremity	17,970	37.4	Hand or fingers	76
Trunk injuries	15,485	32.2	Back	14
Lower extremities	11,193	22.9	Foot or toes	54
Head injuries	2,657	5.5	Eye	58
Face and neck injuries	984	2.0	Face	93
Total	48,289	100.0		

TABLE 5—SEX AND WAGES OF THE MORE SERIOUSLY INJURED.

Weekly wages.	Male.	Female.	Total.	Per cent.
Under $5				
$5 and under $10	25	15	40	.8
$10 and under $15	153	133	286	5.5
$15 and under $20	698	85	783	15.6
$20 and under $25	1,642	22	1,664	33.3
$25 and under $30	836	5	841	16.9
$30 and under $35	627	1	628	12.6
$35 and under $40	317		317	6.3
$40 and under $45	153		153	3.0
$45 and under $50	45		45	.9
$50 and under $55	25		25	.5
$55 and under $60	3		3	
Over $60	15		15	.2
Salary not reported	215	6	221	4.4
Total	4,754	267	5,021	100.0

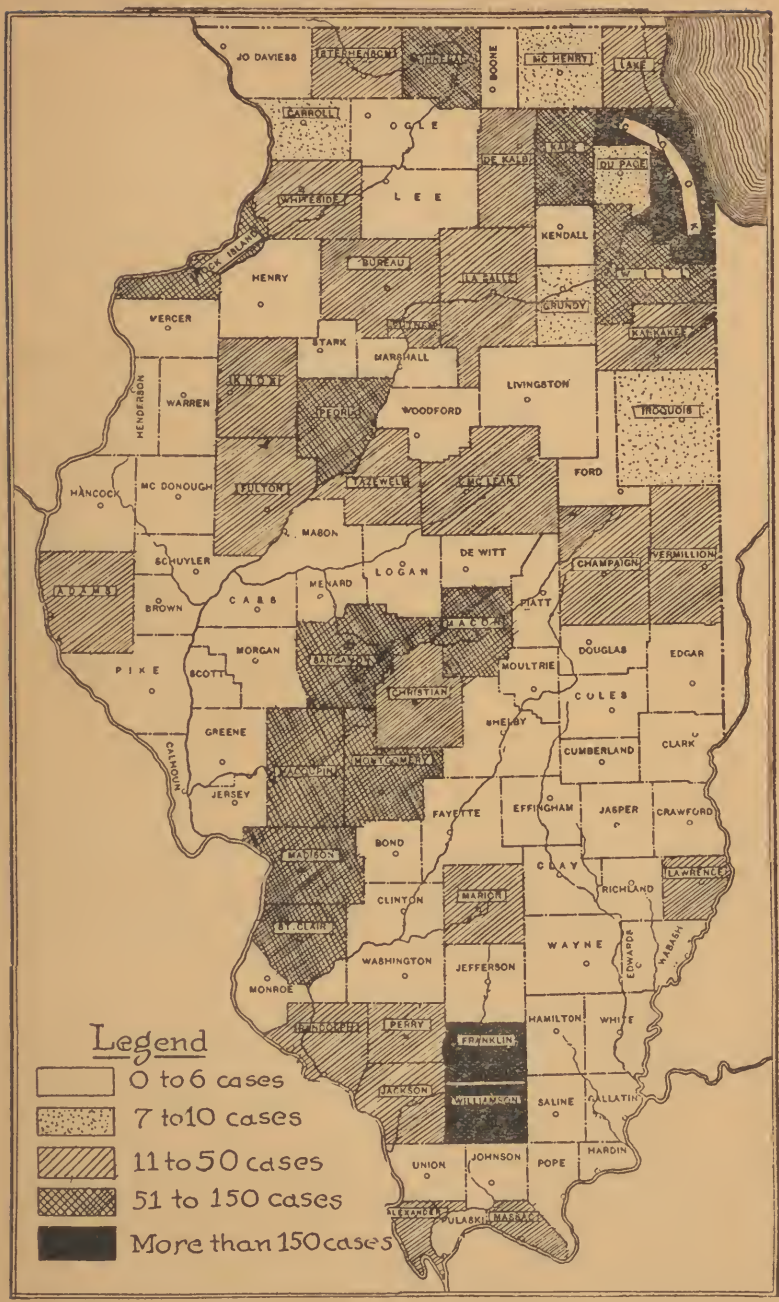
Derived from Table 6, of the report of the Industrial Commission.

TABLE 6—OCCUPATIONS IN WHICH THE MORE SERIOUS INDUSTRIAL INJURIES OCCURRED IN 1919.

Industry.	Permanent total disability.	Permanent partial disability.	Specific loss.
Total	27	121	4,873
Per cent	.5	2.3	97.2
Agriculture			13
Mining coal	11	66	1,275
Mining (other minerals)			2
Oil and gas well operating			14
Quarrying			15
Stone products	1	1	26
Clay products	2		22
Glass products		1	27
Ore red and smelting		2	16
Rolling mills and steel works	1	3	160
Metal products	1	6	733
Machinery and instruments		4	447
Vehicles		2	199
Lumber and wood	1		311
Leather			44
Rubber and composition goods			22
Chemicals and allied products		1	85
Paper and paper products		1	81
Printing and publishing			98
Textiles		1	33
Clothing and furnishing	2		45
Food, beverages, etc	2	7	336
Miscellaneous manufacturing products			41
Wrecking and moving			9
Grading, excavating and foundation	1		31
Erecting		4	201
Finishing equipment and installation	1	2	49
Steam railroads		4	90
Electric railroads		1	31
Cartage and storage		2	104
Stock yards		1	13
Transportation by water			2
Public Utilities (not transportation)		3	37
Offices		1	12
Stores (wholesale and retail)	2	4	86
Yards		1	64
Salesmen and agents		1	1
Domestic			46
Personal			5
Professional		1	8
Municipal and public	2	1	28
Not otherwise classified			11

Derived from Table 2 of the report of the State Industrial Commission.

THE MORE SERIOUSLY INJURED, BY COUNTIES.



The number of injuries, of the three classes under consideration, in the highest ten counties, were as follows:

1. Cook	2,534	6. Madison	146
2. Franklin	274	7. Winnebago	117
3. Williamson	271	8. Macoupin	106
4. Saline	203	9. Montgomery	76
5. St. Clair	149	10. Rock Island	74

B. Accidents Reported by Public Utilities

Only a part of the injuries that occur in the service of public utility companies are covered by the Compensation Act. The number of accidents reported to the Public Utilities Commission and those included in the statistics of the State Industrial Commission are shown in the following table:

TABLE 7—NUMBER OF INJURIES IN CONNECTION WITH PUBLIC UTILITIES.

	*Compensable accidents, year ending Dec. 31, 1918.	**Accidents reported to Public Utilities Commission year ending June 30, 1919.	
		Employees.	Passengers and others persons.
Steam railroads	1,507	10,805	1,649
Electric railroads	557	552	6,361
Public Utilities (not transportation)	738	1,279	70
Municipal and public	238		
Total	3,040	12,636	8,080

* Annual report, State Industrial Commission, p. 16.
** Manuscript report from chief engineer, dated September 14, 1920.

From this table it appears that 13 per cent of the number of accidents reported to the Public Utilities Commission during one year were reported for a similar period of twelve months by the State Industrial Commission. The comparison is not exact, as the report years end respectively on June 30 and December 31.

The report of the Public Utilities Commission shows the following occupational classification of employees injured non-fatally during the year ending June 30, 1919:

TABLE VIII—OCCUPATIONS OF EMPLOYEES INJURED NON-FATALLY IN SERVICE OF PUBLIC UTILITIES COMPANIES, YEAR ENDED JUNE 30, 1919.

	Steam railroads.	Interurban railroads.	Street railroads.	Total.	Per cent.
I. STEAM AND ELECTRIC RAILROADS.					
A. Movement of trains—					
a. Bridge and building man	4			4	.1
b. Electrician		2		2	
c. Shopman	6		1	7	.2
d. Stationman	12			12	.3
e. Switchtender and crossing watchman	9			9	.02
f. Trackman	127	6		133	4.

TABLE II—Concluded.

	Steam railroads.	Interurban railroads.	Street railroads.	Total.	Per cent.
A. Movement of trains—Concluded.					
g. Trainman	1,259	37	27	1,323	40.3
h Yard trainman	1,530	12	111	1,653	50.4
i. Other employees	114	3	9	126	4.5
Total	3,061	60	148	3,269	100.0
B. Other than movement of trains and cars—					
a. Bridge and building man	216	3	61	280	3.5
b. Car repairer	859	2		861	10.9
c. Electricians	28	1	2	31	.3
d. Laborers and truckers	1,710	9	12	1,731	21.9
e. Lineman	21	1	3	25	.3
f. Shopman	2,221	4	78	2,303	29.3
g. Stationman	251	7	49	307	3.9
h. Switchtender and crossing watchman	32		1	33	.4
i. Trackman	1,062	4	19	1,085	13.8
j. Other employees	1,088	10	56	1,154	14.7
k. Other persons	74	1	2	77	1.
Total	7,562	42	283	7,887	100.0
II. PUBLIC UTILITIES—NOT TRANSPOR ATION.					
Blacksmiths				8	.6
Cablemen				31	2.5
Chauffeurs				33	2.6
Coal and coke handlers				23	1.8
Coal gas stokers				67	5.3
Electricians				34	2.7
Engineers				26	2.1
Firemen				27	2.1
Foremen				30	2.4
Groundmen				21	1.7
Helpers				47	3.8
Installers				72	5.8
Laborers				138	11.1
Linemen				105	8.4
Machinists				14	1.1
Messenger boys				5	.6
Meter tester or reader				55	4.4
Oilers				4	.3
Operators, sub. station				109	8.8
Repairmen and troublemen				35	2.8
Shopmen				5	.4
Telephone and telegraph operators				1	
Wiremen				8	.6
Other employees				287	23.1
Other persons				65	5.2
Total				1,250	100.0

APPENDIX F-6

NEGLECT OF INDUSTRIAL INJURIES DUE TO MAKING COMPENSATION SETTLEMENTS PRIOR TO RESTORING FUNCTION OF INJURED PARTS

In this section is shown:

The interest of industrial concerns and of their insurance carriers, in arriving at early settlements of liability for injuries to workmen, frequently results in permanent disabilities which might otherwise have been prevented.

The injured man is unable to judge the extent of his injury or the possibility of future improvement, and is therefore willing to make an early settlement, provided the company will admit a considerable degree of disability. The firm and the insurance carrier prefer an immediate settlement to a long continuance of a case. The advice of specialists is not easily available in many instances, and the obscure effects of the injury are not recognized, nor the possibility of restoring function to the injured part. The circumstances are favorable to driving a bargain immediately, and letting the man fare for himself. The man, after a settlement has been made, is not likely to get the expert advice and treatment needed for restoration.

The effect of the compensation settlement is to confirm in the man the impression that he is totally and permanently disabled, with the result that he leaves his trade and may drift into idleness and dependency.

Cases that are brought before the State Industrial Commission for arbitration and which are found to require special examination or diagnosis, are referred to the medical section of the Commission. Descriptions of six of such cases are presented herewith, to illustrate the foregoing statements. These case histories have been summarized by the medical director of the commission, Dr. Paul B. Magnuson.* In presenting these case records, Dr. Magnuson says:

> These cases, as well as many others that we see, sometimes daily, demonstrate that, by expert surgical and medical attention, many so-called permanent disabilities can be relieved, which would seem to indicate that there are two things necessary:
>
> *First*—A place where men can be sent, where they will be sure to have expert advice of all kinds, not only surgical and medical, but neurological, orthopedic, dental and genito-urinary; where there are proper laboratory facilities and the many things that are necessary to make proper diagnosis.
>
> *Second*—It should be compulsory for the company to show, by competent medical testimony, that no further improvement can be expected from medical or surgical treatment before a settlement is allowed. There should be a clause in the law which would compel employers to furnish this treatment, to the maximum restoration of the patient.

I—Philip Cox† fell some forty or fifty feet, suffering a fracture of the sixth cervical vertebra, without serious displacement or injury to the cord. At the same time he received a fracture of the skull with severe laceration of the scalp. He came to the Industrial Commission totally disabled for work on account of a serious limitation of motion in the neck. He could not turn his head either way, nor raise it to look up. The case came up for settlement on the basis of permanent disability, and upon examination I recommended that further treatment be established with a view to reducing the disability which he had; my diagnosis being that the man had an inflammatory process in the joints of the vertebrae of the neck which, if relieved, would improve his condition.

* See also "Industrial Surgical Clinics," by Drs. Paul B. Magnuson and John S. Coulter, J. B. Lippincott & Co., 1920.

† Names used in this series are fictitious.

There was considerable argument as to the amount of expense and whether it would be cheaper to pay the man for his disability and let him go, or whether we could assure the company of enough improvement to warrant their going to the expense of trying to cure him. Urged by the commissioner, the company consented, and after six weeks of treatment in the hospital, without operation, the patient was discharged with full motion in the neck. He has now returned to light work until such time as he is strong enough to take up his regular employment.

This condition, without treatment, would have become progressively worse and would have resulted in permanent total disability, whereas proper treatment restored the patient to a practically normal condition.

II—Arthur Hull was brought before the commission for determining the amount of disability present after a twisting injury to the arm, which resulted in a paralysis of the muscles of the shoulder and part of the muscles of the arm.

It was recommended that electrical treatment and relaxation of the affected muscles be instituted, instead of giving the man a rating of partial permanent disability. This treatment restored the entire group of muscles to normal function. It took about ten weeks' daily treatment and the expense was considerable, but the young man was able to control his arm and shoulder.

While I have not been in touch with Hull for some months, when he left the hospital, the muscles were all working, although they were not as strong as they would be after he had used them. It is my understanding that he went back to work for the same people who employed him before the accident.

III—William Rodhouse fell from a scaffolding, fracturing his left heel. He came before the commission and a settlement was agreed upon of 60 per cent loss of use of the left foot. He was sent to the medical department for examination and it was recommended that an operation be performed, which would probably reduce the disability by a considerable amount. There was a great deal of argument between the attorney for the company, the man's attorney and the medical department, as to whether it would not be cheaper to pay the man for the partial loss of his foot rather than go to the expense of an operation.

The medical director stated he believed the disability could be reduced at least 30 per cent and, on account of urging by the plaintiff's attorney, it was finally agreed that the man should have the operation. As a result of the operation Mr. Rodhouse has regained almost complete use of his foot. When last seen he made the statement that he was going back to his old job, as a bricklayer.

Had it not been for the generous attitude of the plaintiff's attorney, however, in insisting that Mr. Rodhouse be restored to as nearly normal as possible, the man would probably have taken his 60 per cent loss of the foot, which would have amounted to 65 weeks at $15 per week, and would have remained a cripple, unable to follow his trade.

IV—Arthur Wallace suffered a fracture of both bones of the forearm with mal-position of the fragments. He had no rotation in the forearm because of the bad position of the bones. He was up for settlement of partial permanent loss of use of the arm.

It was recommended that an operation be performed to reduce this deformity and disability, which was finally accepted. The man was operated upon, the bones of the forearm straightened, the excess callous removed and the fractures fixed in place by internal splinting. As a result, the man has a perfectly normal forearm with no disability and is able to do his regular work.

V—William Mansur received an injury to his back as a result of falling coal which bruised the joints of the spine, especially in the lumbar region, and strained the ligaments in this region. As a result he was judged to be a permanent total disability, so far as mining was concerned, and was being paid compensation as a result. He was sent to Chicago for examination and a diagnosis was made of arthritis as the result of a combination of traumatism and infection.

It was found that all of his teeth were badly infected and after considerable persuasion on the part of the surgeon the teeth were extracted. The back was immobilized by a brace for a number of weeks, with subsequent treatment by massage and heat and in three months the patient returned to his old work as a miner, as happy as a young lad.

VI—Alvin Blanco was struck by a piece of steel which entered his forearm about four inches above the wrist and just to the outside of the ulna. At the time of the examination, the scar was tender (eleven months after the injury) and upon pressure he said there was experienced pain that ran up to his shoulder. Also he complained of pain in the little finger side of the palm of the hand, especially at night. There was a distinct atrophy of all the hyperthenar muscles, distinct atrophy of the palm of the hand, and complete atrophy of the adductors of the thumb. There was an abrasion over the outside of the little finger, which he had received a number of months prior to the date of examination and which he said would not get well. There was complete anaethesia of the little finger and of the little finger side of the ring finger.

There was an 80 per cent loss of use of this hand as a result of this injury, which will be permanent, because the condition will gradually become worse.

This case should have been treated by an open operation for the suturing of the ulnar nerve, soon after the accident.

APPENDIX F-7

JOB SPECIFICATIONS FOR LARGE INDUSTRIAL PLANTS IN RELATION TO THE EMPLOYMENT OF PHYSICALLY HANDICAPPED PERSONS

A physically handicapped person finds employment in an industrial plant at the present time usually under one of the five following conditions:

1. On account of shortage of the labor supply, until recently, it has been difficult in some plants to keep ablebodied workmen at the more tedious light jobs or the handicapped may excel in ability. An example is a Chicago firm manufacturing phonographs, which until recently has employed about 30 handicapped persons in its assembly department.

2. An industrial concern may decide to employ persons with various types of physical handicaps in considerable numbers regularly and to adjust its organization and processes with that end in view. An example is the Ford Motor Company of Detroit, where it is said that no applicant is refused employment and no employee is discharged on account of his physical condition. Recently this concern was reported to be employing 9,500 persons who were physically handicapped among a total employed force of 33,000.*

3. A firm may determine to employ a number of persons having a single type of physical disability and adapt its organization and methods to that purpose. An example is the employment of the blind in coil and armature winding, and other jobs in the electrical industry.†

4. Many concerns continue to employ persons who have been injured in their service. The disabled employees are often acquainted with other opportunities in the plant, in case it is necessary for them to shift on account of their disabilities, and their foremen and associates are ready to cooperate in making adjustment to the advantage of the injured employee. Certain types of work are kept in view for disabled employees, such as watchman or elevator operator. These jobs, in many instances, offer little prospect for advancement. Some firms have provided special organization and adopted regular procedure for this purpose, as, for example, the E. I. DuPont de Nemours Company, of Wilmington, Delaware.

5. The philanthropic motive, and at the close of the war the patriotic motive, have been the basis of much of the employment of the handicapped. Four concerns included in the present survey, with a total employed force of 1,722, were found to have a policy of employing disabled persons for professed philanthropic motives.

During the war a number of industries were surveyed with a view to the possibility of employing disabled soldiers. The war-time surveys ordinarily brought a new viewpoint to the employment departments of

* "Salvage of Men," a pamphlet published by the Ford Motor Company, p. 4.

† "Information about Profitable Industrial Occupations for the Blind" in the Finger Industry News, Ampere, New Jersey.

the concerns studied, regarding the possibilities of using disabled persons for work which formerly had been considered only possible for ablebodied persons. In most instances a practical test of these findings was not made by putting groups of physically handicapped persons, properly qualified to undertake the work, on the jobs selected.

Many of these concerns, and others that have given attention to the question, are willing to assist in the employment of handicapped workmen, if they will make application, and if specific opportunities are located in the plant. The installation of disabled workmen as they may apply occasionally, is the most practical procedure at the present time.

THE NEED OF JOB ANALYSIS

If a handicapped person who has, since becoming disabled, had experience in some factory operation, as, for example, a man with a leg amputation who can operate a punch press—makes application for that kind of a job, he presents somewhat the same employment problem as an ablebodied workman.

But if the man has a weak back, and if he be qualified for only those jobs in a given plant in which he may occasionally be required to do heavy lifting; or if his disability be in his lungs or his heart and the work should be of an exhausting nature, it would be desirable to know these conditions prior to placement. If in taking a job the physically handicapped man has in view securing the advantages that come through continued employment with the same concern and advancement in the service, it is necessary to have in mind at the outset a possible line of promotion in which his disability would not be a handicap.

While in the smaller concerns circumstances such as these may be easily kept in mind by the manager of the plant, for the larger concerns it is desirable that they be reflected in the job specifications which are prepared for the guidance of the employment department.

In the study of opportunities for physically handicapped employees in 23 industrial establishments in Chicago, job analyses were observed to be in use in two of them. The descriptions of the jobs or processes were useful in determining the possibility of performance by a person with a given disability, but nevertheless it was necessary to study the job firsthand before a clear understanding of its physical requirements could be obtained.

STUDY OF A SPECIFIC SCHEME OF JOB ANALYSIS

The job analysis scheme of one of the largest employment concerns in Chicago, not included among the 23 plants studied, has been examined as to its usefulness as a guide in finding opportunities for the physically handicapped. A copy of the job specification sheet in use is reproduced here:

JOB SPECIFICATIONS.

Job Name BELTMAN Job No. B-7

Departments

DESIRABLE EMPLOYEES' QUALIFICATIONS.

[X] Male [ ] Female. ENGLISH [X] Speak [X] Read [X] Write SCHOOLING [X] Public [ ] High [ ] Technical [ ] University

NATURE AND CONDITIONS OF WORK.

[X] Floor	[X] Standing	[ ] Heavy or Fatigue	[ ] Quick	[ ] Rough	[ ] Hot	[ ] Dust	[X] Dirty
[X] Bench	[ ] Sitting	[X] Medium	[ ] Slow or Monotonous	[X] Close	[ ] Cold or Outside	[ ] Fumes	[ ] Greasy
[X] Machine	[ ] Stooping	[X] Light	[X] Dangerous	[ ] Exacting	[ ] Wet or moist	[ ] Acids	

Kindred Occupation

Machine Tools Operated SEE NOTE

Personal Hand Tools Required BELTMAN'S TOOLS

Approximate time required to train an inexperienced employee to do this work

RATE DATA.

[ ]Day work job [ ] Piece work job

Starting rate [ ] hour [ ] day [ ] week is from

to

Day [ ] hour Work [ ] day Rate [ ] week is from (a) (b) (c)

to

Base [ ] hour [ ] day Rate [ ] week is from

to

Approximate piece work earnings [ ] hour [ ] day [ ] week are from

to

Overtime Bonus or Premium

Remarks

Job Name BELTMAN Job No. B-7

THE DUTIES OF THIS JOB ARE:

To install and maintain all kinds of power transmission and conveying belting.

NOTE: At some works the duties of this job also involve the operation of a power scarfing machine.

THE NECESSARY EMPLOYEE QUALIFICATIONS TO FILL THIS JOB ARE:

(1) Must be a thoroughly experienced beltman able to make, repair and install belts of any material for all kinds of power transmission and conveying purposes.

(2) Must be handy in the use of beltman's tools such as knives, belt scraper, belt hoe, belt shave, long skiver, punch, awls, and clamping tools.

(3) Must be able to figure and measure belt lengths, thickness, and widths, for all sizes of pulleys, making necessary allowances for splicing and cementing.

(4) Must be capable of squaring, scraping, splicing and cementing or punching and lacing all sizes of belts, and be familiar with the different kinds of belt fasteners and belt cements.

(5) Must be able to repair and splice large belts in place and be experienced in dressing and treating belts.

(6) Must be an active, careful workman, possess good eyesight, observant to avoid accidents and capable of working from ladders or elevated structures.

(7) Must know the dangers involved and be thoroughly familiar with all "safety first" rules and also be capable and willing to follow such instructions very carefully.

(8) Must be capable of directing helpers.

Remarks: Before starting this job the employee must be instructed as to any dangerous or hazardous conditions in connection with his duties and made familiar with all "safety first" rules.

In this printed form the chief advantage in ascertaining opportunities for physically handicapped persons appears in the section entitled: "Nature and Conditions of Work." It is important always to know whether the work is heavy or fatiguing, or repetitive, or rough, or dirty, or cold or wet, or in connection with fumes or acids. For certain types of disability, for example, defective heart or blindness or useless lower limbs, one would be inclined to scan especially the specifications for jobs marked "machine, sitting, light, repetitive, slow and fine."

While under "Duties" and "Qualifications" there appears some characterization of the work that is to be done, no description is given of the detailed operations, as, for example, would appear in a motion study description. Such a detailed account is especially desirable in job analysis sheets if they are to be of practical usefulness in placement of the physically handicapped.

The section on "Qualifications" in this analysis form was found to be only of limited use in relation to placement of disabled persons, because the qualifications were written in terms of experience rather than of physical condition. It was noted that in the job specification sheets reviewed the "Qualifications" required experience on the particular job. This may have been due partly to the fact that nearly all of these jobs are highly specialized routine machine operations, requiring not so much general skill as practice with the given machine.

VISITATION OF PLANT

The specifications for 35 of these jobs which seemed to promise opportunities for the physically handicapped, were selected and taken to the plant. Although the job analysis sheet led the investigator to think that handicapped workers might be used, the jobs were actually not capable of performance by disabled persons in many instances because of circumstances not mentioned in the specifications, chief of which was the fact that the specifications were prepared with the ablebodied workman in mind. One job which could be performed by a disabled person was made impossible for certain types of disability because of the location nearby of two babbiting machines which created excessive heat.

The job descriptions for this company would be much more useful if the medical department were to make extensive notes regarding the effects of the work in each instance on the health of the employee and its relation to his physical capacity. A combination of such detailed notes with more complete description of job operations, and checking in each instance to indicate the possibility of performance by persons with any of the main types of disability, would increase the value of these job analysis from the standpoint of systematic employment of physically handicapped persons.

The job specification sheets that have been observed in the survey of this and other plants are all apparently constructed with the ablebodied employee in view. With a better understanding of the problems

of the physically handicapped and of their value in industry, a greater willingness may be expected on the part of employment departments to take less than the cream of the labor market for some jobs.

The note regarding safety, given as a standard instruction under "Remarks" in the foregoing form, represents an effective method of associating with each job the idea of prevention of accidents.

Job analyses and charts showing lines of promotion, have a distinct value for employment of physically handicapped persons in large numbers. The foregoing examination of a schedule of specifications indicates that if a statement of possibility of employing persons with given disabilities were included, the schedule would be more useful for this purpose. In some instances where there is prospect of employing large numbers with specific disabilities, motion study according to the method of F. W. Gilbreth would be advantageous.

APPENDIX F-10

SPECIAL STUDIES OF OPPORTUNITIES FOR PHYSICALLY HANDICAPPED PERSONS IN INDUSTRY

The following tabular summary is made of studies of industrial opportunities for physically handicapped persons in the publications of the

Federal Board for Vocational Education, "Opportunity Monograph" series;

Red Cross Institute for the Crippled and Disabled, New York City;

United States Shipping Board, Emergency Fleet Corporation.

In addition to the opportunity monographs of the Federal Board for Vocational Education, noted in the schedule, general descriptions of occupational opportunities are available in the same series on many other subjects, 135 of which were announced in "The Vocational Summary" for August, 1919. A series of standard descriptions of occupations is being published by the United States Department of Labor.

STUDIES OF OPPORTUNITIES FOR THE BLIND

Several plant surveys were made during the war by the American Red Cross, under the direction of Mr. A. L. Segur, an industrial engineer of Chicago, to determine the number of opportunities for employment of blinded soldiers. An elaborate schedule of investigation was used and the industries selected afforded various types of employment. In all but one of the plants studied the investigators found opportunities for em-

ployment of blind workers ranging between 8 and 20 per cent of all jobs in the plant.

In summarizing the results of these surveys, the superintendent of the Red Cross Institute for the Blind at Baltimore says:*

Mr. Segur submitted quite a detailed and elaborate report of his work. All of this material is on file at the Red Cross Institute for the Blind where it may be studied by any one interested. His report gives in detail the physical qualifications required to perform the various jobs in the plants surveyed. The most detailed report pertains to the Armour Packing Company's plant. This report covers practically every department of that very large industry. The data covering other plants is not so elaborate, nor does it cover every department. There is data, however, pertaining to one or more departments of the following plants:

1. The Diamond Chain & Manufacturing Company, Indianapolis, Ind.. manufacturers of steel roller chains for trucks, motor cycles, light machinery, and for various other purposes.

2. The Crane Company, Chicago, Ill., manufacturers of all kinds of valves, pipe fittings and pipe. The report pertains particularly to core making.

3. Johnson Chair Company, Chicago, Ill., manufacturers of chairs and office furniture. The report covers a number of operations in the finishing department.

4. Automatic Electric Company, Chicago, Ill., manufacturers of an assorted line of electrical equipment. Report covers various departments.

5. Packard Motor Car Company, Detroit, Mich., manufacturers of automobiles and trucks. Report covers the foundry and forge departments.

6. Burroughs Adding Machine Company, Detroit, Mich. The report covers very little relative to this plant, as the work was brought to a conclusion about the time this plant was entered. However, it is thought that there are a number of operations that can be successfully performed by blind men in this character of manufacture.

7. The Goodyear Tire & Rubber Company, Akron, Ohio. Quite an amount of material pertaining to this industry was obtained. Some seven or eight specific jobs can be performad by blind men. These operations offer potential employment to two or three hundred blind men. The company is very friendly towards the idea.

The detailed report covering these plants, indicates potential employment possibilities for all types of handicap, as well as of the blind. In this digest only potential jobs for blind and near blind are given, because that is our chief concern. It is to be remembered also that the statement that these operations can be performed by blind and near blind is, in a large measure, the opinion of Mr. Segur and his assistants, which has been reenforced by statements from engineers and officials of the plants wherein surveys were made. While it is mere opinion and not a demonstration, yet we have had sufficiently close contact with the work to be disposed to believe that a very large percentage of the operations classed as being open for the blind can be demonstrated to be practicable. Because of our close contact with the Goodyear Company and the Diamond Chain & Manufacturing Company plants, we are quite positive that the operations listed for the blind in those plants can be done very successfully. This leads us to believe that the same is true of all operations classed in this report as possible for the blind.

If our work continues for some years, a test should be made of the feasibility of all jobs classified as possibilities for the blind. If the demonstration should succeed for only 50 or 60 per cent of the jobs listed, that would open potential employment sufficient adequately to take care of practically all of the able-bodied adult blind of this country.

* Summary attached to letter of August 3, 1920.

OCCUPATION STUDIES OF SPECIAL USEFULNESS IN TRAINING AND PLACING THE PHYSICALLY HANDICAPPED.

Occupation.	Reference.	Other handicaps than amputation noted.	Is amount of training for each process described?
1. Baking	Opportunity Monograph Number 43	Eyesight and hearing	Yes
2. Brush manufacturers	Red Cross Pub. Series 2, Number 7	Heart trouble, hernia, hearing, sight	General
3. Candy industry	Red Cross Pub. Series 1, Number 16	None	No
4. Celluloid industry	Red Cross Pub. Series 1, Number 16	None	No
5. Cigar manufacturer	Red Cross Pub. Series 1, Number 16	None	No
6. Commercial occupations	Opportunity Monograph Number 25	Yes	Yes
7. Coppersmithing	Red Cross Pub. Series 2, Number 4	Yes but general and by parts, see page 18 as sample	No
8. Dental mechanics	Opportunity Monograph Number 41	Yes, hernia, heart, tuberculosis, page 7	1 yr. college
9. Flour milling	Opportunity Monograph Number 42	Yes, page 10-11	No
10. Garment trade	Opportunity Monograph Number 35	Sight	Yes
11. Lumber industry	Opportunity Monograph Number 19	Hearing, sight, physique	Yes
12. Leather industry	Red Cross Pub. Series 1, Number 16	None	No
13. Motion picture industry	Red Cross Pub. Series 1, Number 16	None	No
14. Optical goods	Red Cross Pub. Series 2, Number 6	Heart trouble, hernia, hearing, sight	Yes
15. Paper goods industry	Red Cross Pub. Series 1, Number 16	None	No
16. Piano manufacturer	Red Cross Pub. Series 1, Number 16	None	No
17. Printing trades	Opportunity Monograph Number 24	Yes	Yes
18. Rubber industry	Red Cross Pub. Series 1, Number 16	Heart trouble, hernia, hearing, sight	In some processes
19. Shipyard occupations	U. S. Shipping Board Emergency Fleet Corporation	None	General
20. Shoe industry	Red Cross Pub. Series 1, Number 16	Heart trouble, hernia, hearing, sight	Yes

OCCUPATION STUDIES OF SPECIAL USEFULNESS IN TRAINING AND PLACING THE PHYSICALLY HANDICAPPED—Concluded

Occupation	Are physical surroundings described?	Are wages discussed?	Is promotion discussed?	Are hours of work discussed?	Are specific handicaps discussed and index reference to occupation given?	Special features
1. Baking	Yes, page 4	Yes	Very general	Yes	Yes.	Table on p. 56 is noteworthy, showing occupation and all features.
2. Brush manufacturer	No	Yes	No	No	Yes, very good, pp. 53-56	Pp. 8-11, charts and tables showing national growth.
3. Candy industry	Yes, very good, p. 26	Yes	No	Yes	No	Noteworthy summary of advantages and disadvantages.
4. Celluloid industry	Yes, very good	Yes	No	Yes	No	Noteworthy summary of advantages and disadvantages.
5. Cigar manufacturer	Yes, very good	Yes	No	Yes	No	
6. Commercial occupations	No	No	Yes	No	Yes	Unique study of one hundred cases.
7. Coppersmithing	Yes	No	No	No	Yes, but at end of each section	
8. Dental mechanics	Yes, p. 4	Yes	No	Yes	No, but general, p. 7	A useful standard outline form.
9. Flour milling	Yes	No	No	No	No, general, p. 10-11	A useful standard outline form.
10. Garment trade	Yes	Yes	Very general	Yes	Yes	
11. Lumber industry	No	No	No	Yes	Yes	Exceptionally complete, different tabulation.
12. Leather industry	Yes	Yes	No	Yes	No	
13. Motion picture industry	Yes	Yes	No	Yes	No	
14. Optical goods	Yes	Yes	No	No	Yes, p. 29-31	
15. Paper goods industry	Yes	Yes	No	No	Yes, for amputations	Cites skilled and unskilled jobs possible with artificial limbs.
16. Piano manufacturer	Yes	Yes	No	No	Yes, for amputations	Lists possibilities for leg and arm handicaps.
17. Printing trades	Yes	Yes	General	Yes	Yes	
18. Rubber industry	Yes	Yes	Yes	No	Yes	
19. Shipyard occupations	No	No	No	No	No	Excellent descriptive analysis in standardized form.
20. Shoe industry	Yes	Yes	Yes	No	Yes, pp. 105-110	Specially complete study.

It is understood, of course, the training of the blind man for the job, and the obtaining from the employer of permission to give the man a chance. I am confident that the latter can be accomplished if properly approached. This is true because the modern industrial plant manufacturer is progressive and is willing to undertake new things, if they are properly presented.

APPENDIX F-11

MINNESOTA ACT PROHIBITING INSURANCE COMPANIES FROM RAISING RATES OF CONCERNS THAT EMPLOY PHYSICALLY HANDICAPPED PERSONS

I. Text of Law.

(Minnesota Laws of 1919, Chapter 367. Approved April 23, 1919.)

AN ACT making it unlawful to discriminate against handicapped persons through workmen's compensation insurance rates and providing penalty.

Be it enacted by the Legislature of the State of Minnesota: SECTION 1. No person, partnership, association or corporation, or their agents or employees writing workmen's compensation insurance in this state shall make or charge any rate which discriminates against the employment by the insured of any person who is physically handicapped by reason of loss or loss of use of any member due to accident or other cause.

SECTION 2. Any person, partnership, association or corporation, or their agents or employees, offering a rate of compensation insurance forbidden by section 1 of this act shall be guilty of a misdemeanor.

SECTION 3. Whenever any company or its agents or employees shall have been convicted of a violation of this act, such fact shall be sufficient cause for the cancellation of its license by the commissioner of insurance.

SECTION 4. This act shall take effect and be in force from and after its passage.

II. Comment on its Operation

(Extract from letter from Oscar M. Sullivan, Director of Reeducation of Injured Persons, State Department of Education, dated November 20, 1920.)

Our Minnesota act is a separate act and not a part of the compensation law.

While we believe there is very little actual discrimination shown by compensation insurance companies in this state, I think it is a good thing to have such a law on the statute books because one can then reassure employers. The question comes up frequently and there has evidently been discrimination in the past or employers would not have so strong an idea that their rates were going to be raised.

If you plan an act for Illinois, I would suggest that you broaden the language a little; there is question whether our Minnesota act would cover discrimination against one-eyed or partially deaf persons. This is because of the use of the word "member." There are some narrow court decisions which hold that a member refers solely to the extremities of the body. The question had not been raised in Minnesota at the time this act was framed but since that time there has been a Supreme Court decision which touched upon the point rather ambiguously with the result that at the present time we are not certain whether, if it came to an issue, compensation could be required for partial loss of vision, for instance.

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